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An Investigation of the Junior
High-School Movement

AN INVESTIGATION OF THE JUNIOR
HIGH-SCHOOL MOVEMENT

BY

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I HEREBY RECOMMEND THAT THE THESIS PREPARED UNDER MY SUPER-
VISION BY Clarence Esher Erffmeyer

ENTITLED AN INVESTIGATION OF THE JUNIOR HIGH-SCHOOL
MOVEMENT

BE ACCEPTED AS FULFILLING THIS PART OF THE REQUIREMENTS FOR THE
DEGREE OF Master of Arts in Education

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*Required for doctor's degree but not for master's.

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INTRODUCTION.

We usually regard the common school as the product of the Reformation. Before that time education was thought of as the exclusive right of the sons of the aristocracy, and there was no special training for the boys and girls of the common people. But among the Puritans who settled in New England the belief in an elementary education for all children was firmly accepted because of religious reasons. However, even before the colonists had established any elementary schools, we find them founding a college and beginning a Latin grammar school, whose purpose was to train ministers and leaders in the state. The traditions of aristocracy were still strong, and although the ideal underlying the elementary school was essentially democratic, that underlying the secondary school was avowedly aristocratic. The ministers and the other professional classes were a separate group, and the schools which gave them their preparation were exclusive institutions. Thus while there were established within a very short time after the founding of the colony the three divisions of education as we have them today, the elementary, secondary and higher; they were not at all regarded as being the three parts of one system. The result was an elementary school for the masses, and secondary and higher schools for the classes, and these two systems had but little in common.

These two types of schools continued their separate development until well within the national period of our history. Toward the close of the colonial period, however, the Latin grammar school began to decline in influence, due to the waning interest in religion and the fact that it was ceasing to serve any broad

educational need. As a consequence there was a tendency to establish schools offering a more practical curriculum than the old Latin grammar schools had provided. To meet this need the academy arose, and this proved to be the transition institution between the Latin grammar school and the public high school. The academy, while much more democratic than the Latin grammar school, was nevertheless essentially an aristocratic and select institution, since it provided education only for the select youth of the better-to-do classes of society. The fact that it was accustomed to receive those who had completed the elementary schools did not in itself constitute the elementary school and the academy two parts of a single system of education.

The desire of the common people for an education in advance of elementary training at length found expression in the establishment of the public high school. The public high school arose to provide a free secondary education for the masses, and was the first, full expression of democracy in the phase of secondary education. The public high school was almost universally designed to succeed the elementary school course and to build upon it. As a consequence admission to the high school practically everywhere required the completion of the elementary school.

It is thus evident that the present form of articulation between the elementary and secondary schools in the United States is of relatively recent development and represents the results of an attempt to bring into relation two institutions which had grown up more or less independently. In other words, the present situation is the result of a gradual growth rather than a logically de-

veloped system. For many years, however, the eight-four system of articulation and organization which had gradually developed was not questioned. The new, free secondary school was too busily engaged defending its very existence to be able to devote much of its energies to the question of internal adjustment and articulation.

Toward the close of the nineteenth century the problem concerning economy of time in education arose and the discussion at length turned to the question of the best division of time between the elementary and the secondary school. As an attempt to reorganize the schools upon the best possible basis the junior high school was introduced. Since that time "junior high school" has been a term with which to conjure. The development and growth of the junior high school movement has been very rapid, and this has in itself been one cause of the fact that much of the reorganization which has passed under the name of the junior high school has been of a very superficial character. Many so-called junior high schools have been organized which entirely fail to provide for the fundamental readjustments which this new type of school involves. Such superficial reorganization demands that attention be given to the fundamental principles which should underlie this change. Numerous articles have appeared upon the subject of the junior high school, but practically all of these deal with but a portion of the problem. As yet only a beginning has been made in attempting to present in a manner at all comprehensive the basic principles which should serve as guides in such a complete reorganization as that which the junior high school contemplates. The need of such a presentation is most clearly evident to those who are face to

face with the actual introduction of this new type of school.

Just as those who are beginning a junior high school are probably never able to organize a school which will in all particulars prove best in experience, but will require many modifications and readjustments, so in this stage of the junior high-school movement it is probably impossible to lay down fundamental principles, which will require no changes. On the other hand, it is very desirable that we attempt to state in as comprehensive a manner as possible the underlying principles of the junior high school; and it is for this purpose and in such a spirit that the following attempt to solve this problem has been undertaken.

CHAPTER I.

DEVELOPMENT OF THE JUNIOR HIGH-SCHOOL MOVEMENT.

As was stated in the introduction, the articulation between the elementary and secondary schools was the result of attempts to bring together two institutions which had grown up more or less independently. This articulation was not the result of a logically constructed organization, but came about through a gradual growth and evolution. Before long the resulting form of organization was questioned, President Eliot of Harvard at the meeting of the Department of Superintendence in 1888 raising the question, "Can school programs be shortened and enriched?" His interest in the question was directed primarily to the possibility of lowering the age of freshmen upon entrance to college, but he argued that, "It is necessary to examine the American school programs from the beginning, to start with the primary school and go on through the grammar school and the high school, searching for the places where time and labor can be saved."*

President Eliot followed this paper by another in 1892, on "Shortening and enriching the grammar school course,"** in which he advocated the elimination of the wasteful work in the elementary schools in arithmetic, grammar and geography, and the introduction into the upper grades of the elementary school of

* C. W. Eliot: "Can School Programs be Shortened and Enriched" in his Educational Reform, pp. 155-156.

** C. W. Eliot: Proceedings of N.E.A., 1892, pp. 617-625

natural history, elementary physics, algebra, geometry, French, German, and Latin.

With these two papers began the discussion of a re-organization of the school system, which has sought to determine the purposes and place in our educational scheme of the common elementary school, the secondary school, and higher education. During the years following until the present time, the discussion has especially centered around the questions of eliminating useless material from the long-established subjects of the elementary school, the introduction into the upper grades of the elementary school of subjects usually deferred until the high school, and the introduction of departmental methods in the seventh and eighth grades, with the possibility in view of shortening the whole course of instruction through the university by a year or more. This discussion eventually resulted in the organization of a new type of school, the junior high school, as the best solution of these problems.

One immediate result of President Eliot's discussion was the appointment of the Committee of Ten by the N.E.A. This committee reported in 1893, and its recommendations, so far as they have to do with the elementary school, were almost revolutionary. "In the opinion of the Committee, several subjects now reserved for high schools, -- such as algebra, geometry, natural science, and foreign languages, -- should be begun earlier than now, and therefore within the schools classed as elementary; or, as an alternative, the secondary school period should be made to begin

two years earlier than at present, leaving six years instead of eight for the elementary school period. Under the present organization, elementary subjects and elementary methods are, in the judgment of the Committee, kept in use too long." *

In 1895 the Committee of Fifteen on Elementary Education of the N.E.A. gave its report. This committee did not favor lessening the time given to elementary education, but believed that a modified form of secondary studies might be introduced into the upper grades of the elementary school.

"Your committee is agreed that the time devoted to the elementary school work should not be reduced from eight years, but they have recommended that in the seventh and eighth grades a modified form of algebra be introduced in place of advanced arithmetic, and that in the eighth year English grammar yield to Latin. This makes, in their opinion, a proper transition to the studies of the secondary school and is calculated to assist the pupil materially in his preparation for that work. Hitherto the change from the work of the elementary school has been too abrupt." **

During the same decade another important study under the direction of the N.E.A. was made by the Committee on College Entrance Requirements. Their report in 1899 made the following recommendations in respect to the length of the elementary and secondary periods.

* Report of the Committee of Ten on Secondary School Studies, 1893, p. 45.

** Report of the Committee of Fifteen on Elementary Education, 1895, p. 95.

"In our opinion it is important that the last two grades that now precede the high-school course should be incorporated in it, and, wherever practicable, the instruction in those two grades should be given under the supervision of the high-school teacher.

"This recommendation really means a six-years' high-school course of study, and therefore that the qualifications of the teachers of the seventh and eighth grades shall not be inferior to those of the teachers in the remaining high-school grades."*

In addition to these reports and discussions by the N.E.A. and other educational organizations, the problem was discussed by many individual educators of prominence. In an address in 1898 before the University High School Conference at the University of Illinois, President Nicholas Murry Butler characterized the elementary period of school life as follows:

"Elementary education I define as that general training in the elements of knowledge that is suitable for a pupil from the age of 6 or 7 to the period of adolescence. It is ordinarily organized in eight or nine grades, each occupying an academic year. Nine grades are too many and are distinctly wasteful. To spend so much time on these simple studies leads to that arrested development which is so often the bane of the elementary-school period. I have never known a child who needed more than

* Report of the Committee on College Entrance Requirements, 1899, pp. 23-24.

six years' time in which to complete the elementary course."*

These recommendations of committees and of individuals were subjected to discussion and criticism, which served to distinguish more clearly the different parts of our school system in respect to function and relationship. During the decades preceding President Eliot's address in 1888, the high school had been busily engaged in a struggle for existence. There had been a sharp contest over the question of supplying an education of secondary grade at public expense, and as late as the beginning of the last quarter of the nineteenth century there were many discussions as to whether the high school should be supported by public tax. By 1888 this point had been won, and the high school, no longer compelled to fight for its very existence, could direct its energies upon problems of constructive criticism.** ✓

In 1901 at the conference of the academies and high schools affiliating with the University of Chicago, Prof. Dewey called attention to the problem relating to the articulation of the secondary school in the educational system, especially with reference to adjustment to the elementary division. He was confident that "we shall soon see the same thoughtful attention which for the past fifteen years has characterized discussion of the

* N. M. Butler: "Scope and Function of Secondary Education" Educ. Rev. 16-17. June, 1898.

** F. F. Bunker: "Reorganization of the Public School System" U.S. Bur. of Ed. Bull. No. 8, 1916, p. 55.

relation of the high school and the college, speedily transferring itself over to the problem of a more organic and vital relation between the high school and the grades."*

This same conference in the following year (1902) discussed the reorganization of the school system, and thought it desirable "to connect the work of the eighth grade of the elementary school with that of the secondary school," believing that "in some way or other time must be saved in the preliminary stages of educational work in order that men and women may enter upon their life work at an earlier stage."** Three committees were appointed by this conference to consider the problem from the viewpoint of the elementary school, the secondary school, and the college.

The report which the committee on elementary schools gave the next year is of interest because of several of the conclusions which it reached.

"There were reasons, outside of those which result from the desire to adjust the curriculum to the college, which make the shortening of the course of the elementary school to seven years advisable.

"The necessary condensation of the work resultant from the adoption of a seven-year course will be beneficial. It will

* John Dewey: "Current Problems in Secondary Education."
School Review Vol. 10, p. 19.

** Harper: "The High School of the Future"
School Review Vol. 11, pp. 1-2 Jan. 1903.

lead to a critical examination of the customary studies and their adjustment to the standpoint of common-sense and public utility. A certain redundancy of subject matter may find correction by this readjustment of time, and educational and utilitarian essentials be better recognized. It may possibly be found that some of the matter embodied in the various studies is unessential, and more of scholastic than educational origin and value."*

The seven-year elementary school of Kansas City, Mo., was cited by this committee as evidence of the feasibility of the plan, and it was thought that "the shortening of the course should be effected, not by the transfer of the studies of the last year to the high school, but by the sifting of the present work of the elementary schools and its redistribution over seven years."**

The report of the committee on elementary education together with those of the committees on secondary schools and colleges was referred to the three committees sitting together and known as the "Commission of Twenty-One." In 1904 this commission in reporting raised the question without answering it, "Should the elementary school correspond to the period of childhood and therefore should it provide for six years of school work from the ages of 6 to 12 years, instead of eight years as at present?"***

* Report of Committee on Elementary Schools, School Review, Vol. 12, p. 16, Jan. 1904.

** Ibid., School Review, Vol. 12, p. 18, Jan. 1904.

*** Report of the Commission of Twenty-One, School Review, Vol. 13, p. 24, Jan. 1905.

In 1902 "The Pettee Committee" reported on "An extended high-school curriculum" to the Conference of Collegiate and Secondary Instructors, at Western Reserve University. This report, expressing the professional judgment and the recommendation of nearly two hundred teachers, principals, and school superintendents, recommended a six-year high school divided into an upper high school and a lower high school, the latter comprising children from the ages of twelve to fifteen years.*

The Committee on Proposed Investigations on the Culture Element and Economy of Time in Education of the N.E.A. reported in 1905 and advised the appointment of another committee of five persons, who should prepare a report on the following topic: "The best period for the high school, four years from fourteen to eighteen, or six years from twelve to eighteen.**

The same year, Dr. Lytle, State Inspector of High Schools for New York, addressed the Department of Secondary Education of the N.E.A. upon the subject, "Should the Twelve-year Course of Study be Equally Divided between the Elementary School and the Secondary School?***" In this paper he advocated an equal division of the time between elementary and secondary education on the grounds that the length of time given to elementary education in an eight-year

* "A Six-Year High-School Course" in Brown: "The American High School" pp. 411-415.

** Proc. N.E.A. 1905, p. 279

*** Proc. N.E.A. 1905, pp. 428-433

course is the result of a desire to attain perfection in the fundamentals; that secondary education should begin when the child has acquired the tools of education and when adolescence begins; that a decided mental change occurs in the child at this point which education should recognize; and that a six-year elementary course would make possible a differentiation based upon individual capabilities and interests.

Accordingly, that year a standing committee was appointed to consider the advisability of dividing the twelve years equally between elementary and secondary schools. The first report of the "Committee on an Equal Division of the Twelve Years in the Public Schools between the District and High Schools" was made in 1907. In this report the committee declares that "while on the question of the proposed change there is not a complete unanimity of opinion, there are preponderating arguments in its favor."*

The following year this committee, working along the lines indicated by growing educational opinion, decided as follows:

"1. To outline what may reasonably be required of pupils at the end of the sixth school year as essential to a preparation for high-school work.

"2. To suggest for the seventh and eighth grades a minimum practical course of study based on the experience and practice

* See Report of Committee, Proc. N.E.A. 1907, pp. 705 - 710

of the civilized world, to consume perhaps 70 per cent. of the pupils' time, and to advise for the other 30 per cent. those electives which the best pedagogical thought and practice approve.

"3. To recommend further careful investigation in regard to fixing points for vocational differentiation in accordance with local conditions and individual characteristics.

"4. To recommend that promotions be by units of work accomplished rather than by years, thereby permitting the shortening or lengthening of the time in which the course, nominally of six years, may be completed by pupils of varying ability."*

In 1909 the committee gave its "Third Report on Six-year Course of Study." The Committee believed that sentiment for the six-and-six division was growing, and declared that the change to an equal division of time between elementary and secondary education was inevitable. In concluding their report the committee summed up their attitude toward the proposition as follows:

"There is a general impression revealed by this and other correspondence that the whole course of instruction, both elementary and secondary, should be simplified; that the differentiation of pupils' work should begin at the end of the sixth grade; that time is wasted on non-essentials and on impracticable topics; that there should be greater flexibility in the promotion of pupils; that the whole system should be reorganized.

"A study of the schools of Great Britain and Germany within the past year discloses that differentiation begins in both

* Report of the Committee on Six-year Course of Study, Proc. N.E.A. 1908, p. 627

countries at the point corresponding to the end of our sixth grade; that the essentials of the higher mathematics, of science, and the study of the foreign languages are begun at that point, and in many of the best schools even earlier; that the secondary period is six to eight years in length.

"The Committee is of the opinion that while we may not expect or hope for any sudden or extensive changes in the general scheme of organization from the eight- and four-year division to the six-and-six division, nevertheless we feel certain not only that the change is inevitable but that it is already in progress and is taking place in different ways to meet local conditions."*

In 1913 there was published the Report of the Committee of the National Council of Education on Economy of Time in Education. This committee agreed upon the following principles:

"The fundamentals of elementary education -- facts, habits, dexterities, sentiments, etc. -- can be taught in six school years, allowing the elementary period to end at 12.

"At the end of the first six years of school the child requires new and varied interests, beyond those found in the elementary curriculum.

"By a division of the six-year high school into two periods, junior and senior, a large number would complete the first period; the plan would be adapted to an advanced grade of vocational school between 15 or 16 and 18 for pupils unable to continue

* Report of Committee on Six-year Course of Study. Proc. N.E.A. 1909, p. 502

a general course."*

In 1918 the Commission on the Reorganization of Secondary Education, appointed by the N.E.A., reported as follows:

"We, therefore, recommend a reorganization of the school system whereby the first six years shall be devoted to elementary education designed to meet the needs of pupils of approximately 6 to 12 years of age; and the second six years to secondary education designed to meet the needs of pupils of approximately 12 to 18 years of age.

"The six years to be devoted to secondary education may well be divided into two periods which may be designated as junior and senior periods. In the junior period emphasis should be placed upon the attempt to help the pupil to explore his own aptitudes and to make at least provisional choice of the kinds of work to which he will devote himself. In the senior period emphasis should be given to training in the fields thus chosen."**

It is interesting to note that several years before this in 1915 the Department of Superintendence of the N.E.A. indorsed one of the main characteristics of the junior high school in one of their resolutions. "Resolved, That we note with approval the

* See Report of Committee in U.S. Bureau of Education, Bulletin No. 38, 1913, p. 11.

** See Report of Commission in U.S. Bureau of Education, Bulletin No. 35, 1918, p. 18.

increasing tendency to establish, beginning with the seventh grade, differentiated courses of study aimed more effectively to prepare the child for his probable future activities. We believe that as a result of these modifications a more satisfactory type of instruction will be developed and that a genuine economy of time will result."*

A reorganization of the school system and the introduction of the junior high school has likewise been recommended by recent school surveys. The Portland Survey ** under the direction of Ellwood P. Cubberley in 1913, the Butte Survey *** under the direction of George Strayer in 1914, and the Springfield Survey **** under the direction of Leonard P. Ayres in 1914, each recommended the introduction of the junior high school as part of the school system of these cities.

The specific problem with which the discussion of the junior high school started was, as we have seen, the desirability of reducing the age of college graduates. This problem was soon subordinated to the broader question of a reorganization of our school system which should make the schools more efficient in serving the needs of all the children. At first the movement for

* Proc. of N.E.A. 1915, p. 256.

** Report of the Survey of the Public School System of Portland, Oregon, pp. 189-198.

*** Report of a Survey of the School System of Butte, Montana, pp. 63-67.

**** The Public Schools of Springfield, Illinois, pp. 117-122.

reorganization was necessarily concerned with a theoretical discussion of its educational aspects and a consideration of working plans. Following this stage of its development, the movement entered upon that of actual adoption and trial, and this part of its development has been remarkably rapid.

During the past two decades an abundance of literature, dealing with all phases of the movement for a reorganization of the school system has appeared. This literature has especially emphasized the need for a reorganization of the curriculum of the upper elementary grades, the possibility of greater economy of time, the necessity of remedying the defects in articulation between the elementary and secondary school, the demand for decreasing the large amount of retardation and elimination, the obligation of attending to individual differences and providing for these through differentiated curriculums.

Among the cities in which a reorganization of the school system upon this new basis has been attempted, there are many different forms and stages of development. These are due in part to the varying local conditions and the differing educational conceptions held by those introducing the change. In spite of the different forms which the reorganization has assumed, it is possible to indicate with a fair degree of accuracy the growth of the movement and the proportions which it has reached.

Although many cities had introduced features of the junior high-school plan previous to dates here given for the first junior high schools, it is probable that the real beginning of this movement is to be found in the reorganization of the school

systems in Columbus, Ohio (1908), Berkeley, California (1910), Concord, New Hampshire, (1910), and Los Angeles, California (1911)*

In the report of the U.S. Commissioner of Education for 1912, thirty-one cities claimed to have adopted the junior high school or some modification of it.** It is evident that among these cities reporting a reorganization there is little uniformity, due to the fact that as yet no recognized standard for the junior high school had been achieved. Two years later the Commissioner of Education in gathering data concerning the junior high school defined it as follows:

"A junior high school is defined as an organization of grades 7 and 8 or 7 to 9, whether housed with the senior high school or independently, to provide by various means for individual differences, especially by an earlier introduction of prevocational work or subjects usually taught in the high school."***

According to this definition 193 cities reported as having junior high schools in the year 1913-1914, and 222 additional**** cities were seriously considering the introduction of such schools. In a study of the extent of the junior high-school movement made by Mr. A. A. Douglass in 1916 there were reported 286 cities which had the plan in operation, 20 were in the process of reorganization,

* Inglis: Principles of Secondary Education, p. 292.

** Report of U.S. Commissioner of Education, 1912, Vol. I, pp. 154-155.

*** Report of the U.S. Commissioner of Education, 1914 Vol. I, p. 147.

**** Ibid., pp. 147-151.

The first part of the paper is devoted to a general
discussion of the problem. It is shown that the
problem is of great importance in the theory of
differential equations. The second part is devoted to
the study of the properties of the solutions of the
problem. It is shown that the solutions of the
problem are unique and that they depend
continuously on the data of the problem.

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29 expected to adopt it later, and 24 were studying the plan with a view to some mode of reorganization.* The report of junior high schools in the North Central Association territory in 1917-1918 shows that in the seventeen states included in this association there were 160 junior high schools before the year 1916, during 1916 there were 61 such schools established, during 1917 there were 72 more added, making the total number of junior high schools 293.** The number of junior high schools in operation throughout the whole country had increased, according to T. H. Briggs, to over 750 in 1919.***

An important step in the further development and standardization of the movement was taken when the North Central Association formulated a definition of the junior high school. Their definition is as follows:

"A junior high school is a school in which the seventh, eighth and ninth grades are segregated in a building (or portion of a building) by themselves, possess an organization of their own that is distinct from the grades above and the grades below, and are taught by a separate corps of teachers. Such schools, to fall within the classification of Junior High Schools, must likewise be characterized by the following:

(1) a program of studies decidedly greater in scope and richer in content than that of the traditional elementary school.

(2) some pupil choice of studies, elected under super-

*A. N. Douglass: "The Junior High School" in National Society for the Study of Education, Fifteenth Yearbook, Part III, p. 27.

**C. O. Davis: "Junior High Schools in the North Central Association Territory 1917-1918" School Review Vol. 26, p. 326, May 1918.

***T. H. Briggs: "What is a Junior High School" Educ. Adm. and Super. Vol. V. p. 283, Sept. 1919.

vision.

(3) departmental teaching.

(4) promotion by subject,

(5) provision for testing out individual aptitudes in academic, pre-vocational and vocational work.

(6) some recognition of the peculiar needs of the retarded pupil of adolescent age, as well as special consideration of the super-normal pupil.

(7) some recognition of the plan of supervised study."*

It is probably true that only a relatively small number of the junior high schools reported reach the standard set up by this definition. When we take into consideration the lack of any recognized standard during the period of reorganization we cannot but expect to find a lack of uniformity and a wide variation in practice. The work of reorganization must necessarily be slow and difficult. Local situations and lack of adequate resources have often prevented and hindered the reorganization which the educational leaders of the community have desired. On the other hand a large share of the failure to establish junior high schools which in any measure at all meet the requirements of the above definition is due to another cause. Many superintendents and principals, who do not comprehend the true purpose and significance of the movement, are nevertheless enthusiastic supporters of the plan as they understand it, and because of this lack of understanding, the schools which they establish fail to embody many essential features of the real junior high school. Such persons hinder the development of the movement because they misuse the name and fail to express the

*Directory, Standards, Statistical Analysis and List of Accredited Secondary Schools of the North Central Association of Colleges and Secondary Schools - 1919.

spirit of the movement. There must necessarily be much experimentation before a proper solution is reached, but this is frequently merely haphazard guess-work. It is necessary that sound and fundamental principles guide us in the specific changes which are to be made. We must avoid the mistake of seizing on the general proposition without a careful analysis and study of the specific problems that are involved. Otherwise, the so-called reorganization which will result will prove superficial and will be one in name only, failing to provide real reform. For unless there are sound ideas of reform underlying the junior high school, there is practically no justification for the reorganization. Most of the features which the junior high-school movement embodies were found in actual practice previous to its beginning somewhere in the elementary or secondary schools. This fact does not, however, as some claim, remove the need for a new type of school; for if it enables educational leaders more easily and effectively to assemble desirable changes already existing in practice, it will more than justify itself.

Thus far we have indicated the origin and traced the development and growth of the junior high-school movement until the present time. We have also pointed out some of the difficulties and shortcomings attending that development. In the following chapters we shall attempt to state the principles which underlie such a reorganization and to show their application to the problems of the junior high school.

CHAPTER II.

THE PHYSICAL AND MENTAL TRAITS OF THE
JUNIOR HIGH-SCHOOL PUPIL

The nature of the individuals to be educated must guide us in the formulation of all educational theory and practice concerning the junior high school. Since in education we are concerned with producing, directing and preventing changes in individuals, the greater our knowledge of the physical and mental traits and the nature of their development, the more intelligently can the process of education be directed. A consideration of junior high-school education demands, therefore, that we first take into account the physiological and psychological traits of boys and girls, especially noting the development which takes place in them from approximately twelve to sixteen years of age and which may have a direct bearing on junior high-school principles and practice.

In presenting reasons for reorganizing our school system upon the junior high-school basis, the view is frequently taken that the boy or girl reaches the period of adolescence at about the age of twelve, when there takes place a rather sudden physical and mental development. Such changes should of course be recognized by a change in the method and content of instruction. That is, there are those who believe that the period of adolescence begins at about twelve years of age instead of fourteen, as has been generally held; and that consequently we should give the

twelve-year old much the same treatment formerly given to the pupil fourteen years of age. Those who believe that secondary education should begin at this age because of the sudden changes which occur in the development of children present their case in some such way as the following:

"The present mode of organizing and administering educational work in America is ill-grounded. The adolescent period begins usually at about the age of twelve years. With the dawn of this new period come most notable changes in physical form, structure and function, and most decided concomitant psychological changes. At this period self-consciousness is born. The interests that formerly held dominant sway are cast aside. New motives stir, new aspirations fire, new goals beckon. Conscious logical reason begins to proclaim itself.... The beginning of adolescence is most emphatically the beginning of the period of secondary education. As our schools are organized and administered today this fact is ignored."*

In attempting a consideration of the bearing of physical and mental development upon school organization, we must bear in mind that whereas our knowledge of physical traits and the nature of their development is very inadequate, our knowledge of the development of mental traits is even less adequate and reliable. We shall first direct our attention to the physiological development of children, and from the facts which are presented draw such conclusions as seem warranted.

With the coming of adolescence there becomes evident an

* C. O. Davis: "Principles and Plans for Reorganizing Secondary Education" in Johnston's High School Education, pp. 69-70.

increase in the rate of physical growth. Height, weight, size of muscles and heart, capacity of the lungs, all tend to show a decided increase during this period. The growth of these various parts and organs of the body does not take place at an equal rate, but they develop independently of each other. Nor is one able to predict with any degree of accuracy the stage of physiological development reached even though the chronological age be known. This extreme variability between the chronological age of children and their physiological development is well illustrated in Table I, p.27-8, which shows the result of the measurement of the one physical trait of height.

One point which Table I serves to emphasize is the fact that we are not dealing with averages in considering the junior high-school boys and girls. Not only do we find a great range of variation in height in each age group, averaging nearly a foot and a half, but there is also a great amount of overlapping between the various age groups. This is evident from the fact that the average height for a boy or girl of any chronological age group listed in the table is equalled or surpassed by the height of more than twenty per cent of the boys or girls a year younger.

It has been pointed out that many schoolmen urge as one reason for a reorganization of the school system the belief that the beginning of adolescence should also mark the start of secondary education. Perhaps the surest sign of the beginning of the period of adolescence is to be found in the time of onset of puberty. Hence it is true that if puberty began at the same chronological age for all children, or even for all boys or all girls, the position taken by these persons might prove practicable

TABLE I.

Showing frequency of stature of over 45,000 boys and 43,000 girls of different ages of several American cities. Measurements were made on different groups of children for the several ages.

Height in Centimeters	Boys: Age in Years .					
	11.5	12.5	13.5	14.5	15.5	16.5
109-112	0.2					
113-116	0.2					
117-120	0.4	0.1	0.1			
121-124	2.5	0.7	0.3	0.2	0.1	
125-128	9.1	2.7	0.9	0.3		
129-132	18.1	8.8	2.6	0.6		
133-136	25.5	18.2	7.6	2.0	0.4	
137-140	22.3	23.3	14.9	6.1	1.1	0.5
141-144	13.9	21.2	20.9	10.8	4.4	1.1
145-148	5.3	13.6	19.8	17.1	7.4	1.5
149-152	1.9	7.0	14.9	18.2	13.4	5.1
153-156	0.4	3.0	10.2	17.1	15.4	7.6
157-160	0.2	1.1	4.8	11.9	16.8	13.8
161-164		0.3	1.8	8.4	14.7	18.9
165-168			0.6	3.9	12.9	20.3
169-172			0.4	2.3	8.0	19.1
173-176				0.7	3.1	7.5
177-180				0.3	1.0	3.9
181-184					0.1	0.6
185-188						0.1

Adapted by Inglis from Burk, F., "Growth of Children in Height and Weight." American Journal of Psychology, 9:265-266. Figures after Boas, F., Report of the U.S. Commissioner of Education, 1896-1897, Vol. II, pp. 1541-99.

TABLE I.
(Continuation)

Height in Centimeters	Girls:		Age in years .			
	11.5	12.5	13.5	14.5	15.5	16.5
109-112						
113-116	0.3	0.2				
117-120	0.6	0.2	0.2			
121-124	3.1	0.7	0.2			
125-128	8.6	2.1	0.3	0.2		
129-132	18.0	6.5	1.2	0.3		
133-136	23.4	13.1	3.9	1.0		
137-140	20.8	19.5	10.0	2.6	0.9	0.2
141-144	14.3	21.7	14.3	6.1	2.2	1.0
145-148	6.8	16.2	20.1	12.6	6.4	4.6
149-152	3.1	11.0	21.7	22.6	18.0	13.6
153-156	0.7	5.8	16.0	26.2	27.4	23.9
157-160	0.3	2.4	8.3	16.7	23.0	26.5
161-164		0.4	3.0	8.1	14.8	18.6
165-168		0.2	0.6	2.7	5.7	8.7
169-172			0.2	0.7	1.2	2.6
173-176				0.2	0.4	0.2
177-180						0.1
181-184						
185-188						

and the problem of adjusting our educational practices to adolescents would be very much less complicated than the facts in the case cause it to be. But the age at which the onset of puberty occurs varies for boys and girls, and also varies even more greatly among the members of the same sex. Thus one is unable to determine from the mere knowledge of the chronological age whether a child is immature, in the process of maturing, or already mature. This fact was clearly demonstrated by an investigation by Dr. Crampton, who based his results, as shown in Table II, p. 30, upon the observation of approximately 4800 boys in a New York high school. Figures for the time of the first appearance of puberty in girls, as reported by Baldwin, reveal similarly the same range of variability. The results of his investigation are shown in Table III, p. 31.

The results concerning boys shown in Table II reveal that whereas there is a central tendency as to the time when boys begin to be pubescent, it requires a range of three years for this change to take place in only two-thirds of the boys. This individual variability in the time of onset of adolescence is a phenomenon that is also evident in the other physical changes of the period. Dr. Crampton gives results of measurements which indicate that "at characteristic ages, the mature are more than 33 per cent heavier, 10 per cent taller, and 33 per cent stronger than the immature."* The amount of variation is the important thing to note in the results of these investigations. For instance, if we could group all thirteen-year old boys in the same grade, on the basis of the

* Crampton, C. W.: "Anatomical or Physiological Age versus Chronological Age." Pedagogical Seminary, Vol. 15: 232-234.

TABLE II

Distribution of approximately 4800 boys by chronological age and by physiological age as measured by stages of pubescence.

Physiological Age Groups

Age in Years	Prepubescent or Immature	Pubescent or Maturing	Postpubescent or Mature
12.50-13.00	69%	25%	6%
13.00-13.50	55%	26%	18%
13.50-14.00	41%	28%	31%
14.00-14.50	26%	28%	46%
14.50-15.00	16%	24%	60%
15.00-15.50	9%	20%	70%
15.50-16.00	5%	10%	85%
16.00-16.50	2%	4%	93%
16.50-17.00	1%	4%	95%
17.00-17.50	0%	2%	98%
17.50-18.00	0%	0%	100%

Crampton, C. W. "Anatomical or Physiological Age versus Chronological Age." Pedagogical Seminary, Vol. XV, p. 232. June, 1908.

TABLE III.

Onset of puberty in 1241 girls, distributed by chronological age and stages of puberty.

Age in years	Physiological Age Groups		
	Prepubescent or Immature	Pubescent or Maturing	Postpubescent or Mature
10.0	100.00 %	0.00 %	0.00 %
10.5	93.75	6.25	0.00
11.0	100.00	0.00	0.00
11.5	78.84	19.23	1.92
12.0	62.06	37.93	0.00
12.5	58.20	23.88	17.91
13.0	39.53	34.88	25.58
13.5	15.15	37.87	46.96
14.0	15.38	38.46	46.15
14.5	4.83	17.74	77.42
15.0	0.00	14.54	85.45
15.5	1.55	7.81	90.62
16.0	2.04	6.12	91.83
16.5	0.00	3.17	96.83
17.0	0.00	0.00	100.00

Baldwin, B. T. "A Measuring Scale for Physical Growth and Physiological Age." Fifteenth Yearbook of the National Society for the Study of Education.

Part I, Chap. I, p. 17.

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Author	Title	Year	Volume	Page
A. B. C.	1. The first volume	1900	1	1
A. B. C.	2. The second volume	1901	2	2
A. B. C.	3. The third volume	1902	3	3
A. B. C.	4. The fourth volume	1903	4	4
A. B. C.	5. The fifth volume	1904	5	5
A. B. C.	6. The sixth volume	1905	6	6
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A. B. C.	10. The tenth volume	1909	10	10
A. B. C.	11. The eleventh volume	1910	11	11
A. B. C.	12. The twelfth volume	1911	12	12
A. B. C.	13. The thirteenth volume	1912	13	13
A. B. C.	14. The fourteenth volume	1913	14	14
A. B. C.	15. The fifteenth volume	1914	15	15
A. B. C.	16. The sixteenth volume	1915	16	16
A. B. C.	17. The seventeenth volume	1916	17	17
A. B. C.	18. The eighteenth volume	1917	18	18
A. B. C.	19. The nineteenth volume	1918	19	19
A. B. C.	20. The twentieth volume	1919	20	20

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results of the measurements of Dr. Crampton, we should find approximately one-half of the boys (41 to 55 per cent) immature, approximately one-quarter (26 to 28 per cent) maturing, and approximately one-quarter (18 to 31 per cent) already mature. From this it must be evident that the signs of adolescence are so variable as to render generalization about them both difficult and doubtful when the individual is under consideration.

Inglis has compiled tables by applying to the age-grade distribution in the Patterson, N. J., schools for 1913 the proportions of pupils of different ages at different stages of maturity as determined for boys by Crampton and for girls by Baldwin. These figures are shown in Table IV, p. 33, and may be regarded as approximate estimates. A study of them reveals a number of important facts. The proportion of immature boys decreases gradually and the proportion of mature boys increases gradually from the beginning of the elementary school to the completion of the high school. It will also be seen from these results that grades 7 and 8 of the elementary school and the first year of the high school represent a transition period, there being in the seventh grade only slightly more than one-fifth of the boys mature, while three years later, approximately three-fourths of them are mature or postpubescent. It is clearly evident that any sharp division between elementary and secondary education at the beginning of the seventh grade is unwarranted on the basis of a sudden change occurring in boys and girls at this age. No less is it true that the present abrupt change between the eighth grade of the elementary school and the first year of the high school is a practice whose basis is contrary to the facts in the situation. On the other

TABLE IV

Percentages of Prepubescent, Pubescent, and Postpubescent Pupils in Various Grades of the Patterson (N.J.) Schools in November 1913.

Grades	Boys					Girls					Both	
	Prepubescent	Pubescent	Postpubescent	Prepubescent and Pubescent	Prepubescent	Pubescent	Postpubescent	Prepubescent and Pubescent	Prepubescent	Pubescent	Postpubescent	Prepubescent and Pubescent
1	100	0	0	100	100	0	0	100	100	0	0	100
2	99	1	0	100	99	1	0	100	99	1	0	100
3	97	2	1	99	96	3	1	99	97	2	1	99
4	92	5	3	97	89	7	4	96	90	6	4	96
5	81	11	8	92	74	15	11	89	78	13	9	91
6	69	17	14	86	58	21	21	79	64	19	17	83
7	56	22	22	78	36	26	38	62	46	24	30	70
8	35	22	43	57	18	25	57	43	26	14	60	40
I	22	20	58	44	10	19	71	29	17	20	63	37
II	12	15	73	27	3	10	87	13	8	12	80	20
III	2	8	89	11	1	4	96	5	2	5	93	7
IV	1	3	96	4	0	1	99	1	0	2	98	2

Inglis, A. J., Principles of Secondary Education, p. 28.

hand, the results of this distribution do indicate that the change from elementary school methods and materials to those of the secondary school must be gradual.

Although realizing that at no one point is there any abrupt change, but that there is a gradual transition from the immature to the mature, we may distinguish several large divisions which are consistent with the facts in the case. The first group may be considered to consist of grades 1 to 6 of the elementary school, in which the pupils are predominantly immature and represent a fairly homogeneous group. Inglis found these grades in Patterson, N. J., to contain these percentages of children at different stages of development. "Of all boys in grades 1 to 6 of the elementary school 91 per cent were prepubescent, 5 per cent were pubescent, and 4 per cent postpubescent; of all the girls in those grades 88 per cent were prepubescent, 7 per cent were pubescent, and 5 per cent postpubescent; of all pupils in those grades 89 per cent were prepubescent, 6 per cent pubescent, and 5 per cent postpubescent."*

The second group contains the seventh and eighth grades of the elementary school and the first year of the high school. The pupils in this group are in a transition stage, and there is a great deal of variability within the group. Quoting again from the results obtained by Inglis in his study of the Patterson schools, he says, "Of all boys in grades 7, 8, I (last two grades of the elementary school and the first grade of the high school) 41 per cent are prepubescent, 21 per cent pubescent, and 37 per cent postpubescent; of all the girls in those grades 25 per cent

* Inglis, A. J.: Principles of Secondary Education, p. 31.

were prepubescent, 20 per cent pubescent, and 55 per cent postpubescent; of all pupils in those grades 34 per cent were prepubescent, 20 per cent pubescent, and 46 per cent postpubescent."*

The third group includes the last three years of the present high school in which the pupils are predominantly mature and the group is fairly homogeneous. In the same connection as in the above results, Inglis gives these percentages for pupils in this third group. "Of all boys in grades II, III and IV of the high school 7 per cent were prepubescent, 10 per cent pubescent, and 84 per cent postpubescent; of all girls in those grades 2 per cent were prepubescent, 5 per cent pubescent, and 93 per cent postpubescent; of all pupils in those grades 4 per cent were prepubescent, 7 per cent pubescent, and 89 per cent postpubescent."**

Inadequate as is our data concerning the physical development of children, our knowledge of their mental development is even more fragmentary and unreliable. The assumption has been made that mental growth parallels physical development. Such an analogy, if made, should evidently be drawn from the body as a whole rather than certain parts only. Here we are confronted by the fact that the various organs and parts differ among themselves in the nature and order of their development. To compare the mental development with the physiological development of the nervous system, especially with the development of the higher centers of the brain would be more appropriate. But at just this very point we have the least reliable data. Without attempting, therefore, any analogy of mental development to physical growth, we shall next consider the nature of the development of the mental traits in adolescents.

* Inglis, A. J.: Principles of Secondary Education, p. 31.

**Ibid., p. 31.

As in the case of physical development we find here those who hold a similar theory of a sudden psychological change at adolescence. It is probable that many schoolmen have assumed such a theory of sudden development to justify the abrupt change existing between the elementary and secondary divisions of our education system. Opposed to the theory of a sudden psychological change at adolescence there is the belief that the development of the mental processes is gradual in its nature. In regard to the fundamental psychological processes the advocates of this theory hold that their mode of operation is the same at all ages, and that their relative efficiency at any age is determined by the amount of their exercise and the character of the materials on which they are exercised. Furthermore, they hold that the development of mental traits is to be measured not with reference to general faculties but with reference to specific material. Characteristic of this viewpoint is the position taken by Dewey in the following.

"Adolescence is not, however, a synonym for magic. Doubtless youth should bring with it an enlargement of the horizon of childhood, a susceptibility to larger concerns and issues, a more generous and a more general standpoint toward nature and social life. This development affords an opportunity for thinking of a more comprehensive and abstract type than has previously obtained. But thinking itself remains just what it has been all the time: a method of following up and testing the conclusions suggested by the facts and events of life..... Only by making the most of the thought factor, already active in the experiences of childhood, is there any promise or warrant for the emergence of superior

reflective power at adolescence or at any later period."*

"I have come to believe that reasoning itself, the capacity or ability to reason (or that bundle of minor abilities of which reasoning consists) is not capable of being improved with growing years, or at least, its improvement is not sufficiently marked to be worth mentioning."**

Thorndike also holds much the same general viewpoint. He declares that so far as the capacities, such as sensory discrimination, memory, observation, and the like have been measured, "they give no support to the theory of a sudden rise of inner tendencies. Indeed, every tendency that has been subjected to anything like rigid scrutiny seems to fit the word 'gradual' rather than the word 'sudden' in the rate of its maturing."***

"The one instinct whose appearance seems most like a dramatic rushing upon life's stage--the sex instinct--is found upon careful study to be gradually maturing for years. The capacity for reasoning shows no signs by any tests as yet given of developing twice as much in one year from five to twenty-five as in any other. In the cases where the differences between children of different ages may be taken roughly to measure the rate of inner growth of capacities what data we have show nothing to justify the doctrine of sudden ripening in a serial order."****

The evidence in regard to the development of the individual, both physiological and psychological leads us to the

*Dewey: How We Think, pp. 65-66.

** Dewey: "Reasoning in Early Childhood" Teachers College Record, Vol. 15, p. 9, Jan. 1914.

*** Thorndike: The Original Nature of Man, p. 263.

**** Ibid., p. 261.

conclusion that this development is gradual in its nature, rather than sudden or abrupt. Before considering the bearing which such a conclusion will have upon junior high-school practices, let us look for a moment upon the situation confronting us, if the weight of evidence had been with the theory of saltatory or sudden development. Actual school conditions at once furnish a situation which would prevent us from organizing our schools upon the basis of any sharp differentiation at the point where the abrupt change in the nature of the child is supposed to occur. The reason for this is found in the age-grade distribution of children in the schools. We cannot find in our schools a group of children who are ready to enter a given grade, such as the seventh, and who are at the same point of development in physiological and mental traits. That is, we should be face to face with the very practical question of adapting the organization, the materials and methods of teaching to the needs of the adolescent under conditions such that in no grade do we get more than one-third of the pupils of any given age group. The age-grade distribution of pupils is shown in Table V, p. 39, whose figures are probably typical of a condition generally existing throughout the country.

As our system is at present organized there is a noticeable break between the elementary school and the high school, and the readjustment which faces the boy or girl entering high school is difficult. One of the purposes of the junior high school (to be considered more fully in the following chapter) is the elimination of this gap and the improvement of the articulation between elementary and secondary education. In this reorganization we must take care that we do not merely transfer the difficulty so that it will

TABLE V.

Percentages of Pupils of Different Age Groups in Various Grades in the Schools of Six Cities. Total number of Pupils Considered was approximately 35,000.

Grade	Age 12	Age 13	Age 14	Age 15	Age 16	Age 17
1	0.7	0.2	0.2	0.2	0.2	0.1
2	1.9	0.8	0.4	0.1	0.1	0.1
3	5.8	2.8	1.5	0.6	0.4	0.0
4	11.7	6.7	3.4	2.0	0.6	0.1
5	22.1	13.2	7.1	3.3	1.4	0.3
6	28.2	21.5	12.2	6.6	1.9	0.8
7	21.6	27.5	21.3	12.7	5.8	1.7
8	7.0	19.8	28.5	19.6	12.6	4.6
I	0.9	6.4	15.9	27.5	20.7	10.9
II	0.1	1.0	8.7	22.0	31.0	26.6
III	0.0	0.0	0.8	4.8	19.4	27.9
IV	0.0	0.0	0.0	0.6	5.9	27.0

Inglis, A.J. "A Fundamental Problem in the Reorganization of the High School". School Review, Vol. 23:316, May, 1915. For similar table see also "The Public School System of San Francisco", U.S. Bur. of Ed. Bulletin No. 46, 1917, p. 34.

come two years earlier. If we accept the theory of sudden development there will be a decided tendency to fall into this error, while on the other hand the acceptance of the theory of a gradual development of the powers of the individual will enable us to deal more successfully with this problem of articulation between elementary and secondary education.

In conclusion it is only necessary to make explicit the bearings of this discussion upon the various features of the junior high school. Secondary education is without question largely a matter of the education of adolescents. The facts and arguments presented, however, lead us to a belief in the gradual rather than sudden development of the individual. In view of this we must refrain from organizing and administering our schools upon the basis of any radical differentiation between elementary education and secondary education. Since no definite dates can be set for puberty and adolescence, any sharp separation of elementary and secondary education is without justification. The same consideration holds true in reference to subject matter. At the present time it is very evident that there is rather an abrupt change from relatively concrete and familiar subject matter of the elementary school to relatively abstract and unfamiliar subject matter of the secondary school. Contrary to such a practice, the theory of gradual maturing would demand that the transition from relatively concrete subjects to relatively abstract subjects should be gradual. Likewise the methods of teaching much be changed only through a gradual transition. This does not mean that there is no need for differences in methods of teaching pupils of different stages of development, but it does mean that any abrupt change in teaching

methods at the time when the pupil enters the secondary school is fundamentally wrong. Finally it may be pointed out that the system of supervision and control in the elementary school is of a maternalistic character, while in the secondary school the pupil is responsible to a considerable degree for his own conduct. In this particular also the change between two such different systems should be gradual in character.

The facts and data presented, however, do indicate that the pupils of the senior high school are very different from those of the first six grades of the elementary school. The fact which we have ignored in the past is that this change from immaturity to maturity is gradual. The school organization which will best provide for the immature, the mature, and a transition period between the two stages is the six-three-three plan. That is, the pupils of the first six grades are predominantly immature, grades 7, 8 and 9 represent a gradual transition period from the immaturity found in the first six grades to the maturity of the three years of the senior high school. Our present change from elementary to secondary education comes approximately in the middle of this transition period. It would prove much more satisfactory to group the pupils together during this transition stage, instead of placing one part of them in the elementary school and the other part in the secondary school, with the change between the two abrupt. While keeping in mind the fact that maturity is reached in a gradual manner, we are nevertheless justified in recognizing the three large groups of the immature, the maturing and the mature. The six-three-three plan is therefore advocated because its division conforms more nearly to these facts than

does the eight-four system.

CHAPTER III.
THE EDUCATIONAL READJUSTMENTS OF THE
JUNIOR HIGH SCHOOL

The junior high-school movement means more than a regrouping of the twelve grades of the elementary and high school, and the designation of three of them by a new name. It is true, however, that for many this reorganization has involved little more than such a change. There are certain definite changes and reforms which the junior high school as defined, for example, by the North Central Association, requires. Among the features involved in the junior high-school organization are the elimination of obsolete and useless subject matter from the traditional elementary-school studies, together with the introduction of studies decidedly greater in scope and richer in content; better articulation between the elementary and secondary schools; provision for some measure of differentiation based upon the individual interests and capacities of pupils, and the testing out of their individual aptitudes; recognition of the needs of the retarded and over-age pupil of adolescent age, as well as of the super-normal pupil; and other reforms whose purpose is to aid the school in serving the best interests of all types of pupils.

At the bottom of this demand for a reorganization of our schools lies the ideal of what education in a democracy should be. The essential element of this ideal is the belief in universal education, which has come to include the idea that the selective

principle operating in our present system is un-American. This ideal rejects the selective character of secondary education and seeks to wipe out the distinction between elementary education and public secondary education. It is likewise to be noted that the development of this ideal of a universal and non-selective education extending into the secondary period has been accompanied by bettered economic conditions which make possible a secondary education for the children of all the people.

The need for reform in the traditional elementary school has been long making itself felt. In increasing numbers schools have been organizing their seventh and eighth grades upon the departmental plan, recognizing in this that children in these grades are beginning to require a different type of treatment from that of the lower grades. There has also been a tendency to introduce into these upper grades new and advanced work to take the place of some of that which has been given.

The demand for readjustment has been even more insistent upon the part of the high school. As commonly stated the purpose of the secondary education is to introduce the student to all the broad fundamental types of human knowledge.* The secondary school should introduce the student to a study of social life as revealed by history and civics, to his own language both in rhetorical principles and its literature, to the languages and literatures of other civilizations, to natural science, to mathematics, and also to applied knowledge in industrial, commercial, and agricultural fields, and in domestic activities. To accomplish such a task the

* Report of "Committee on the Reorganization of the American High School" of the North Central Association, in Educ. Adm. and Super. Vol. 1 p. 328. May 1915.

high school is forced to every possible device to find time to do its work. To the solution of this difficulty the junior high school offers the greatest hope of success.

The junior high-school movement had its beginning in the problem of securing greater economy of time in education. A study of the educational organization of other countries reveals the fact that in America we take a longer time to secure the same training that these other countries give. England, France, Germany and Japan all begin their secondary education at an earlier age than we do, and a comparison of results would seem to indicate that they accomplish more in the same time because of this earlier beginning. For example, the end of the medical course preceding the hospital work, in France, on the average, finds a young man at the age of 23; in Germany, at the age of 23; in Great Britain, at the age of 23; in the Netherlands, at the age of 24; in Switzerland, at the age of 23; and in the United States, in the best and most advanced schools in the country, at the age of 26.*

Economy of time may be secured both by lessening the time devoted to elementary school work and by securing larger returns in the time used. The junior high school is attempting to secure greater economy by a combination of both of these means. The presence of considerable obsolete and unnecessary material in the elementary school is indicated by much expert testimony. A great many school men believe that the fundamental facts, habits, attitudes and ideals demanded by the general needs of our civilization can be secured by the child in six school years. Especially is

* Mac Lean, G. E.: "Present Standards of Higher Education in the United States" U. S. Bur. of Ed., Bulletin No. 4, 1913, p. 78.

this true if the less useful parts of the course of study are eliminated and more efficient methods are introduced. The "Committee on Economy of Time in Education" believe that time can be saved by observing the principle of selection, which they state in the following manner.

"The principle of selection is first: choose the most important subjects and the most important topics; make a distinction between first-rate facts and principles and tenth-rate; prune thoroughly, stick to the elements of a subject; do not try to teach everything that is good; confine the period of elementary education to mastering the tools of education. This does not prevent inspirational work, which is a demand on the skill of the teacher rather than on time.... Under the conditions above enumerated the formal elementary period can end in six years."*

There has existed for years a belief that many of our elementary-school subjects as given at present contain a great amount of obsolete and useless material. Some subjects like arithmetic and geography have become cumbersome through the addition of one topic after another during a period of many years. Meanwhile scarcely any obsolete matter has been eliminated in the interest of economy of time. As early as 1893 the subcommittee on mathematics of the Committee of Ten recommended the following: "Among the subjects which should be curtailed, or entirely omitted, are compound proportion, cube root, abstract mensuration, obsolete denominate quantities, and the greater part of commercial arithmetic. In such subjects as profit and loss, bank discount, and simple and compound interest, examples not easily made intelligible to the pupil should

* Report of Committee of the National Council of Education on Economy of Time in Education. U.S. Bur. of Ed., Bulletin No. 38, 1913, p. 15.

be omitted. Such complications as result from fractional periods of time in compound interest are useless and undesirable."*

At the present time, for instance, most of the time given to percentage and its applications is not given to a study of mathematical relations, but to learning certain rules of business and some elements of commercial law. The difficulties met here are not mathematical difficulties, but arise because the subject matter is beyond the experience of the pupils, such as stocks and bonds, exchange, and problems from a large number of industries and occupations concerning which the pupils have little knowledge or interest. Time is wasted in applying the same mathematical principles and processes over and over again to problems which differ only in terminology.

A recent investigation** of this question revealed the fact that there is an overwhelming tendency on the part of half of the superintendents in this country in favor of either eliminating or lessening the attention to be given to certain subjects in arithmetic such as alligation, cube root, unreal fractions, progression, and certain obsolete tables such as folding paper, surveyor's tables, etc. This questionnaire also revealed an overwhelming attitude in favor of increased emphasis on such fundamental subjects as addition, multiplication, subtraction, and division. There is also a decidedly strong disposition to favor increased emphasis on the application of arithmetic to the social and economic conditions of the day, such as the saving and loaning of money, taxation, public expenditures, life insurance, etc.

* Report of Committee of Ten on Secondary School Studies, p. 105.

** Jessup, W. A.: "Economy of Time in Arithmetic" Proc. N. E. A. 1914, pp. 209-222.

Other studies* indicate that there is a widespread belief in the necessity of eliminating obsolete and useless material from such subjects as geography, grammar, history and spelling. It must be clearly understood that the idea of economy of time does not propose that all the matter which has been taught in an eight-year course can be taught in a six-year course by packing it closer in regard to time and by condensation of its material. Neither does it mean the shortening of the period of education for those who turn earlier to the vocations, but rather lengthening it by giving them the tools of education at an earlier age and then offering them such courses that will tend to keep them in school longer than they remain under present conditions.

Not only is there a necessity for securing economy of time through the elimination of certain material, but much time is lost through wasteful reviews of the same subject matter. When the sessions of the elementary school extended through only a few months in the year, all the time available could be profitably spent upon the rudimentary subjects. As the school year has gradually been lengthened, the practice of devoting all the time to these branches has continued and the courses in these subjects have been lengthened and much time devoted to reviews.

This practice continues in our schools to the present time, and in the seventh and eighth grades we find an excessive and wasteful amount of time placed upon reviews. Reviews are important and should not be neglected, but just because the eighth grade has been looked upon as a kind of a terminus, an excessive

* See, for example, Report of the Committee on Elimination of Subject Matter, Iowa State Teachers Association, 1915.

number of reviews have accumulated in the upper grades of the elementary school.

In the next place, the junior high school seeks to eliminate the gap or break between the last grade of the elementary school and the first grade of the high school. As our system is at present organized this transition presents many difficulties for the pupil. The elementary school stops and the high school begins with a noticeable jolt to the student. In the elementary school the pupil leans heavily upon the teacher both during hours of recitation and hours of study; in the high school, particularly during the periods of study the pupil is thrown entirely upon his own responsibility, for which his preliminary school training has never prepared him. He is thrown on his own initiative both as to time and method of getting his lessons. He often finds himself submerged in a large and unfamiliar group of children. His teachers are strange and he often finds it hard to know them personally as he knew his elementary teacher. The studies themselves present new difficulties, for they are quite different from those which have occupied the pupils in their previous school work. Standards of scholarship, methods of instruction, and methods of administration are all different. Under our customary procedure the child enters what is really a new world to him, and in all these important particulars without preparation for them. It is not to be wondered at if, under such conditions, the pupil is unable to adjust himself to the new situation. In consequence of his failure to make a proper adjustment, the student frequently begins to fail in his work, he becomes discouraged and disheartened and quits before he reaches the second year of high school. Worst of all he

quits because he has failed, and he leaves school with a lack of confidence in himself.

The junior high school offers a three-year transition period between elementary and higher secondary education, during which the student is gradually introduced to high-school conditions and methods of study. By providing a closer relation between each successive grade and the preceding one as far as teaching methods and subject matter are concerned, it attempts to eliminate any break between different grades and divisions of the school system. To secure this result the junior high school includes the following features: the gradual change from the one-teacher plan of the grade school to the many-teacher plan of the high school; the gradual change from largely supervised work in the earlier grades to the more independent work and responsibility in the later grades; the gradual introduction of new subject matter; and the gradual introduction of the election of studies and courses.

On the other hand, the junior high school seeks to arrange its work so as not only to make a three-year transition period from the elementary school to the upper high school, but also so that this work will be a unit in itself which can be terminated, if circumstances require, at the end of the ninth year. It is believed that this will result in a tendency to keep in school a year longer the pupil who would otherwise drop out at the end of the eighth year, in addition to insuring a better adjustment to the conditions which prevail in the upper high school. The training of the junior high school will also prepare such a pupil to determine more intelligently whether his circumstances as well as

his interests and aptitudes are such as to justify him in stopping his school work at this point. If after making a careful survey of such matters, he decides to leave school, he leaves, conscious of having succeeded, rather than because he has failed, and a very different reaction upon his character follows.

The junior high school has for another of its primary purposes the provision for individual differences. The attempt in the past to give the same preparation to all, regardless of wide differences in ability, interest, and future work, has been one of the conspicuous causes of waste in elementary education. As a rule we now wait until pupils have completed the eight grades of the elementary school before allowing any definite life motive to influence our educational offerings. By that time half of our pupils have left school. It is not until they reach the high school that the pupils have their first opportunity to move directly toward some definite goal. The junior high school proposes to make conditions favorable to the earlier development of a more definite purpose by ceasing to require all pupils to follow the same course of study after they have reached the upper elementary grades. Such a plan of earlier differentiation will tend to lessen mortality among the slow pupils, and will make possible more rapid progress among the capable. This question of varying individual needs and differentiated curriculums to meet these needs will be more fully discussed in the chapter dealing with the curriculum of the junior high school.

The junior high school attempts to aid in the solution of the problem of retardation and elimination of school pupils. If the function of our common schools is to sort out the best

pupils and prepare them for further education in higher schools, then the most rigorous system with the lowest percentage of promotions and the highest percentage of retardation is the best system. But if, as has been pointed out in the preceding paragraphs, the function of the common school is to furnish an elementary education to the maximum number of children, then other things being equal, that school is best which regularly promotes and finally graduates the largest percentage of its pupils.

Investigations have fairly well established the fact that children who are below their normal grade in school and who reach the end of the compulsory attendance period (generally the age of fourteen) while still in the fifth or sixth grade instead of the eighth, will probably not remain in school until they graduate. They drop out without finishing. This is a fact whose educational importance we cannot too thoroughly appreciate, for we are accustomed to think of the common school course as representing the least amount of schooling that should be permitted anyone, but the fact remains that a large part of all our children are not completing it.

The amount of retardation that is typical of American cities can be illustrated by results from the Springfield, Ohio, schools and San Francisco schools. Table VI, p. 53, and Table VII, p. 54, show the result of investigations in these two cities. In Table VI showing the results at Springfield, Ohio, a heavy line separates those who are of normal age and under from those above normal age. The standard used to determine this separation was to consider in the first grade all children of eight years and over as above normal age, and so on progressively in the following grades. The cumulative effect of failure is clearly evident in

TABLE VI

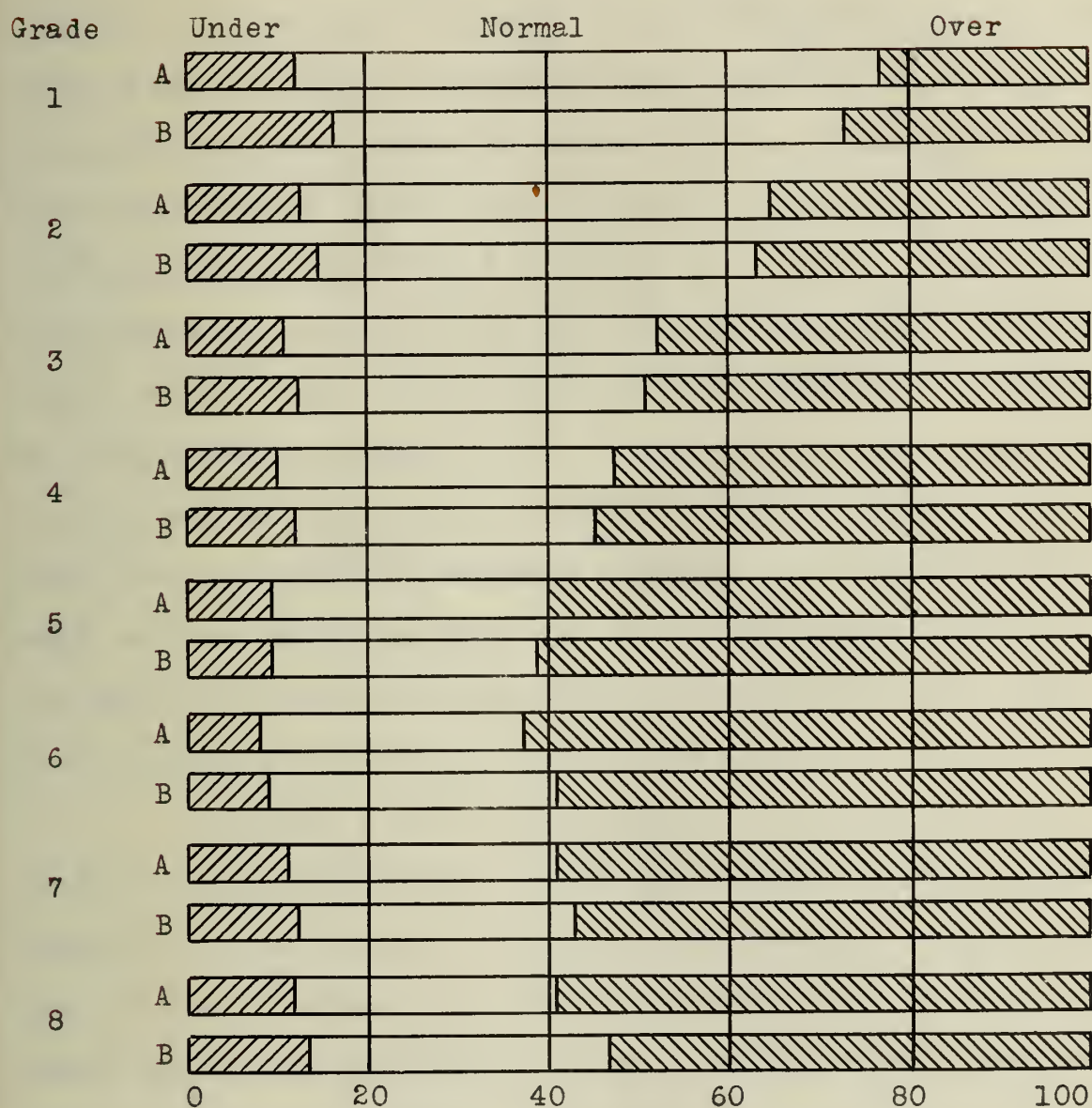
Springfield, Ohio. June, 1908
Ages and Grades of Pupils in Public Schools

Age in Years	Grades								Total
	1	2	3	4	5	6	7	8	
6	482	10	0	0	0	0	0	0	492
7	<u>319</u>	231	32	0	0	0	0	0	582
8	114	<u>314</u>	250	36	0	0	0	0	714
9	34	154	<u>243</u>	184	15	0	0	0	630
10	10	84	187	<u>257</u>	124	25	3	0	690
11	2	33	91	172	<u>236</u>	121	26	2	683
12	0	11	43	121	170	<u>208</u>	101	12	666
13	1	7	21	49	105	154	<u>159</u>	121	617
14	1	2	7	22	58	127	136	<u>154</u>	508
15	0	1	1	7	27	49	69	103	257
16	0	0	2	1	8	11	16	34	72
17	0	0	1	0	0	0	2	6	9
Totals	963	847	878	849	743	695	512	432	5919
Above Normal Age	162	292	353	372	368	341	223	143	2254
% " Normal Age	16.8	34.4	40.2	43.8	49.5	49.0	43.5	33.1	38.0

R. P. Falkner: "Retardation: Its Significance and Its Measurement.
Educational Review, Vol. 38, p. 123. September 1909.

TABLE VII

PERCENTAGES OF PUPILS WHO ARE UNDER AGE, OF
NORMAL AGE, AND OVER AGE



Total, All Grades -

Under age 12.2%
Of normal age 41.2%
Over age 46.4%

1. The Public School System of San Francisco, California,
U.S. Bureau of Education Bulletin, No. 46, 1917, p. 43.

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PHYSICS DEPARTMENT

PHYSICS 309

LECTURE 1

THEORY OF QUANTUM MECHANICS

LECTURE 2

THEORY OF QUANTUM MECHANICS

LECTURE 3

THEORY OF QUANTUM MECHANICS

this table. While in the first grade only 16.8 per cent of the pupils are above normal age, this rises to 49.5 per cent in the fifth grade. Much the same condition is observed in the table from the San Francisco schools. After making allowance of one full year of age in designating the children regarded as of normal age, more than half the pupils in grades four to eight are retarded. The overage group ranges from 22 per cent in 1 A to 53 per cent in 8 B, with a maximum of 62.8 per cent in 6 A. Of all pupils in the elementary schools, 12.2 per cent are under age, 41.2 per cent are of normal age, and 46.4 per cent are over age. In San Francisco "of 21,724 elementary school pupils who are over age, 6,916, or 32 per cent, are retarded less than one year; 8,511 or 39.2 per cent, are retarded one year and less than two; 3,840, or 17.7 per cent, are retarded two years and less than three; 1,574, or 7.2 per cent, are retarded three years and less than four; 883, or 4 per cent, are retarded four years or more."*

Although there is some variability between cities with respect to the proportion of over-age children, Ayres found in his study on retardation that "in 31 cities taken as a whole, 33.7 per cent of the children, or a trifle more than one third, are above normal age for their grades. These figures probably represent with fair accuracy average conditions in city school systems of this country."**

For his classmates the retarded pupil has much younger and smaller children and this is a continual reproach to him. His lack of success discourages him and he leaves school when he has

* The Public School System of San Francisco, U. S. Bur. of Ed., Bulletin No. 46, 1917, p. 44.

** Ayres: "Laggards in Our Schools," p. 48.

passed the compulsory attendance age. Ayres is of the opinion that this "lack of success in school studies is the greatest single cause which impels pupils to drop out of school."* The time when this elimination begins is usually in the upper elementary grades. Quoting again from the results of Ayres he found that the sixth is the first grade showing any dropping out of pupils. "By this grade 10 per cent have left. The seventh grade shows such a decided falling off that only 71 per cent are left. By the time the eighth grade is reached practically one-half of the pupils have dropped out."**This dropping out of retarded pupils after they have passed the compulsory attendance age explains the falling percentage of pupils above normal age after the fifth grade has been passed. Table VIII, p. 57, illustrates very clearly the rapid elimination of pupils in the upper elementary grades, and Table VII, p. 54 shows a decreased percentage of retardation in these same grades, due to this elimination of over-age pupils at this time.

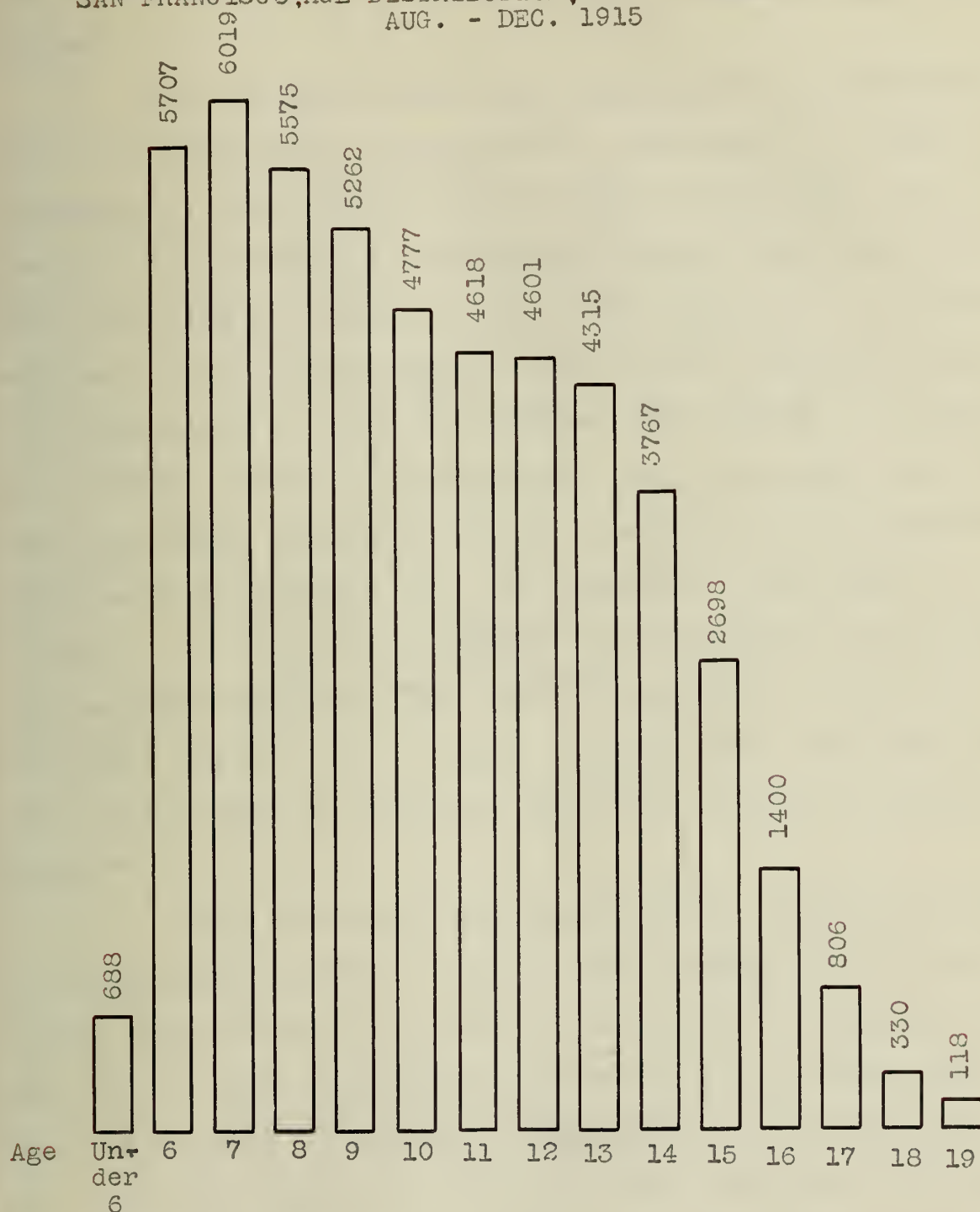
Not only have the children who have made slow progress failed to complete the elementary school by the time they have passed the compulsory attendance age, but they are now old enough to command a recognized earning power in the business world. In consequence the temptation to quit school can scarcely be resisted, particularly since their school work has been discouraging in respect to promotion. In addition the work of the seventh and eighth grades is in most places very much the same as that with which they have been familiar in the lower grades. To such retarded pupils the inducement is not strong to spend two or three years

* Op. Cit., p. 101.

** Ibid., p. 59.

TABLE VIII

SAN FRANCISCO, AGE DISTRIBUTION, PUBLIC SCHOOL PUPILS
AUG. - DEC. 1915



After 13 years, and especially after 14, 15 and 16 years of age, the elimination of pupils from the public schools is very rapid.

1. The Public School System of San Francisco, California.

U.S. Bureau of Education Bulletin, No. 46, 1917, p. 38.

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more in the mere amplification and review of the elements already covered.

At the present time the completion of a prescribed amount of academic work is required for admission to the high school. Consequently, many over-age pupils either leave school, or, if they remain, they are kept in the elementary school when they are no longer deriving much benefit from its instruction. If we attempt to continue in the reorganization of our schools a similar rigid method of promotion, we shall have similar, bad results. It would appear evident, however, from experience with the junior high school, that this school can provide special instruction for these over-age pupils more successfully than the elementary school. Hence the Commission on the Reorganization of Secondary Education "recommends that secondary schools admit, and provide suitable instruction for, all pupils who are in any respect so mature that they would derive more benefit from the secondary school than from the elementary school."*

These over-age pupils should not be permitted to remain in the elementary schools organized for children of the first six grades. The Committee on Economy of Time was of the opinion that of such pupils, "many leave school at the end of the sixth grade who would be retained if practical studies were offered them."** Hence they should be brought to the junior high school and given work suited to their interests and capacities, if we really mean to provide equal opportunity in our schools for all children. In other

*Report of the Commission on the Reorganization of Secondary Education, U.S. Bur. of Ed., Bulletin No. 35, 1918, p. 19.

**See Report of Committee, U.S. Bur. of Ed., Bulletin No. 38, 1913.

words, promotion must not be determined in such cases wholly by what a pupil has learned but also by what he needs to learn. This principle has been expressed in the following manner by the Portland School Survey:

"The most fundamental principle of all, in this connection, is that instruction, both in content and in method, must be adapted to pupils' needs, to individual needs; not the instruction that a pupil has had, but the instruction that he needs; not what a pupil has learned, but what he most needs to learn, must determine the placing of that pupil.

"Carried into practice, this means that when a pupil has reached in maturity and need the intermediate period, he is to be advanced to instruction appropriate to that period, whether he has completed the normal work of the elementary period or not; it means that when a pupil has reached in maturity and need the secondary period, he is to be advanced to instruction appropriate to that period, whether he has completed the normal work of the intermediate period or not. If such pupils are incapable of taking up work usually given in the intermediate or in the secondary periods, then work adapted to their needs must be provided. This is the simple principle that must prevail, that a child in the intermediate, or a youth in the secondary stage of development, belongs with other children in the intermediate or with other youth in the secondary stage of development. Instruction must always fit the stage of development; elementary instruction is not suitable for children of the intermediate stage, nor is intermediate instruction suitable for youth of the secondary stage."*

It is obvious that the execution of plans such as these

*Report of the Portland School Survey, pp. 165-166.

must involve more than simply a regrouping of the grades of our school system and designating several of them by a new name. The work of advancing pupils and of fitting work to their individual needs cannot be reduced to any mechanism, and such plans will not execute themselves. Their success will depend rather upon the constant and appreciative study of pupils, an insight into their individual characters, the exercise of sound judgment, and the willingness to assume large educational responsibilities, on the part of both teacher and principal, under the guidance of the supervisor and the superintendent. This is what the junior high school includes in its plan, and what it must involve if it is to be superior to our present form of organization. It must be admitted that many of the junior high schools as now organized are making no provision for promotion other than existed under the old plan of promotion upon completion of the preceding grades and work. In his study upon the junior high school in 1916 Douglass found that 68 out of 94 replies mention as the condition for admission to the junior high school nothing other than "promotion," "completion," or "satisfactory completion" of the preceding grade. But 18 out of the 94 mention specifically that they admit "big" boys and girls, "over-age" pupils, "mature" pupils, or pupils who are "out of place" in the elementary school, whether they have completed the elementary course or not.* On the other hand, the results of a questionnaire sent out by Briggs in 1919 to sixty-one persons, including professors of education, state educational officials, city superintendents, and principals of junior high schools, indicate that 90 per cent of these

*Douglass, A.A., "The Junior High School" in Fifteenth Yearbook of the National Society for the Study of Education, 1916, Part III, p. 48.

judges agree that the junior high school should be suitable for all pupils approximately twelve to sixteen years of age.*

Another educational readjustment which the junior high school organization involves is a change from promotion by grades to promotion by subject. A system of promotion by grades forces the pupil who has failed in one or two subjects to repeat the work of the entire grade, including those subjects which he has successfully completed. There is no good reason why a pupil should be required to repeat work in a subject which he has already successfully completed. Instead of repeating that which he has already done, he can much better spend his time in some advanced work. Such a plan of compelling a pupil to repeat the work of an entire grade when he has failed in one or two subjects of that grade causes a pupil to lose interest in his work and to become discouraged. The junior high school attempts to avoid such a result by promoting the pupil in every subject which he has satisfactorily completed.

Closely related to promotion by subject is the departmental plan of instruction. The first benefit of this mode of instruction is the fact that the teacher is able to make better preparation for the subjects which he is to teach. Naturally, he can secure a better preparation in a limited number of subjects than in a large number. The second advantage of departmental instruction is that it gives the pupil an opportunity for contact with several well-trained teachers. It is probable that no one instructor will make a corresponding appeal to all his pupils, or be capable of arousing equal interest in all lines of work. It probably would not

*Briggs, T.H., "What is a Junior High School" Educ. Adm. and Super. Vol. 5:291.

be wise to change all at once from the one-teacher plan to a separate teacher for each subject in the curriculum. But it is highly desirable that each teacher have but two or three subjects. In this way departmental instruction can be gradually introduced, and the pupil saved from any abrupt change.

Although the adoption of the junior high school does not automatically provide better teachers, its tendency is distinctly in this direction. The belief is generally accepted that teachers for the junior high school should have higher qualifications than those possessed by seventh and eighth-grade teachers; that in addition to adequate preparation in the subjects which they are to teach, they should have a knowledge of and sympathy for boys and girls of junior high-school age.

Not only are better teachers secured under this plan, but provision for better and more adequate equipment is possible. Under the eight-four plan of organization each elementary school has a seventh and eighth grade. These grades usually contain fewer pupils than any of the other grades. To provide equipment for these grades in each building makes necessary a large amount of duplication of equipment, and results either in only a limited amount of equipment or a large expenditure of money to provide the proper equipment for each elementary school. The junior high school gathers together in one place a number of pupils sufficient to justify a much better equipment for the whole group than an inadequate equipment for each elementary building.

The junior high school, by congregating the seventh, eighth and ninth grades in separate buildings, removes the older boys and girls from the younger children, an arrangement which

proves to be a decided advantage to both. On the one hand, the principal and teachers of the remaining six grades can center their attention upon the needs of these younger children, unhampered by the necessity of having to give time and attention to the problems arising from the control of the adolescent child. The difficulties and problems caused by these older children frequently take the attention of the principal and his teachers to the neglect of the younger children. On the other hand, by bringing together a large number of pupils of the ages of those in the seventh, eighth and ninth grades, an opportunity is created for initiating work through the student-body organizations which can be formed. School athletics, literary societies, debating clubs, musical organizations, and other student activities provide opportunities for training the student how to conduct himself in a group of his fellow pupils. By means of student body organizations correct standards of conduct and character can be secured and a general school spirit developed as in no other way. By utilizing the various student organizations which this opportunity affords, satisfactory results of a very practical character can be secured.

The question naturally arises, What have been the results where these readjustments have been put into practice? What evidence we have upon the subject serves to indicate that beneficial results usually follow the introduction of the junior high school. For example, it has as a rule been demonstrated that attendance in the junior high-school grades has increased. Whether this increase has been due solely to the new form of organization, or is due at least in part to other factors has not been determined. Perhaps

the best evidence of the success of the movement lies in the belief and enthusiasm of those who have really tried it out. There is no evidence that those who have adopted the junior high school desire to return to the old system. It is only a matter of time until demonstrations and proofs will be forthcoming which conclusively will make evident the advantages of the junior high-school form of organization.

Chapter IV.

The Curriculum of the Junior High School

The task of arranging a curriculum for the junior high school is our most difficult problem. In this problem is bound up the solution of many of the other difficulties which confront us in the organization of the junior high school, and hence the practical solution and working adjustment of all these other problems must be sought through the proper selection and arrangement of studies and curriculums. The aims of the junior high school are not distinct from the aims of the educational system as a whole, but are dependent upon these. Since there are varying opinions as to what our schools should seek to accomplish, various and sometimes conflicting aims and objectives have been set up. It is at this point that we meet with difficulties in the construction of curriculums; for the formulation of the curriculum varies according to the way these aims are interpreted and emphasized, and according to the educational philosophy of the individual seeking to determine the curriculum.

We must approach this question in a manner somewhat different from that which has often been the case. Our problem is not primarily one of determining the respective merits of ancient and modern languages, or of scientific and humanistic studies. That is, we must realize that our problem is determined for us by our conception of the purpose of education in a democracy. As stated by the Commission on the Reorganization of Secondary Education, "Education in a democracy, both within and without the school,

should develop in each individual the knowledge, interests, ideals, habits and powers whereby he will find his place and use that place to shape both himself and society toward ever nobler ends."* In other words, education seeks to prepare the individual for his place as a citizen and member of society, to prepare him as a worker and a producer, and to prepare him for participation in those activities of life which concern the proper use of leisure and the development of personality. For every individual is at the same time citizen, worker, and relatively independent personality, and we must regard as a fundamental principle in curriculum construction the recognition of each of these three aims. Therefore, any curriculum which disregards any one of these aims cannot be acceptable.

We have in the past tried to determine the content of the curriculum upon a basis of several general educational ideals, such as information, discipline and culture. Our difficulties have arisen from the fact that these terms have no generally accepted meaning, and the discussion necessarily was largely one of mere opinion. The problem changes with the rounding out of the school to meet all the needs of life. We are no longer concerned with trying to determine which studies will result in culture or discipline, but rather what groups of studies will most serviceably recognize the typical divisions of labor and vocations in society, and which will also secure for the individual the full development of his own

* Report of Commission on the Reorganization of Secondary Education, U.S. Bureau of Educ. Bulletin 35, 1918, p. 9.

powers. It will be less a question of piecing together different studies in order to make out a curriculum running through a certain number of years, and more a question of grouping together studies according to their natural connections and values in securing the ends which have been determined.

It is necessary to point out briefly in this connection the character and needs of the pupils in our schools at the present time. The schools are given the task of educating the children of all the people. At an earlier period the children who came to the secondary school were mostly such as had an interest in the more general types of training. Many of them were looking towards college or higher professional courses when they had finished high school. During the past quarter of a century the enrollment of the high school has increased several fold and the course of study has been enlarged. This increase of such large numbers of children of every condition of life gives increased weight to the demand that the secondary school adapt itself to the great variety of needs represented, and, as far as possible, give each child a training suitable to his interests and capacities.

We have come to recognize more clearly the function of the school in preparing the pupil for work and service in a highly organized society, and this recognition has forced upon us the necessity of differentiated curriculums. Studies in retardation and elimination have revealed a lack of adjustment of a single curriculum to varying grades of ability and capacity. Differentiated curriculums are justified; therefore, both on the basis of economic

and social needs and of individual differences in inclinations and aptitudes. Simply making it possible for all children to take the same course of study, if they wish to do so, does not mean equality of opportunity in education. The same course of study for all tends to produce the greatest efficiency only in those for whom it is adapted, and hence is undemocratic. In other words, equality of opportunity and identity of opportunity are far from being equivalent terms.

Despite these facts we have as a rule failed to make provision for these differences by means of differentiated curriculums in the upper grades of our present elementary school. In our colleges and universities we first provided for a differentiation of courses, adapted to the needs, inclinations and capacities of different groups of students. The high school has also come to offer a variety of courses, but as yet we generally hold to the idea that if equality of opportunity is to be guaranteed, the course of instruction in the first eight grades of our educational system must be alike for all. We still refuse to extend the principle of election to the upper grades of our elementary school as at present organized. Consequently the curriculum of these grades today is largely academic in its character, and suited primarily to children of bookish tastes. Instead of affording equal educational opportunity for all, the upper elementary grades by offering but one course of instruction, serve the best interests of but one type of pupil, and ignore in a measure the taste, capacity and probable destination of all others. And worst of all, those whose needs it most ignores are the very ones for whom the future holds no further

advantages. In other words, what was intended to afford equality of educational opportunity to all, has become in a large sense a school devoting its attention almost entirely to academic subjects and serving well the interests of but a group.

Possibly the best method of approaching the curriculum problem in the junior high school will be through some kind of a scientific survey of the abilities and needs and vocational intentions of the pupils in the school. The test of the different studies of the curriculum will no longer be that of the logical relationship of subject matter, but that of the needs of the student group. To construct a curriculum upon such a plan will be a difficult task. A study of vocations needs to be made to determine what vocations need to be considered in curriculum planning, and just what training is required to fit for each of these vocations. To develop the best possible curriculums in such a manner will necessarily require years of investigation and experimentation.

Although it is at present impossible to determine what the content of the ideal curriculum for a junior high school should be, there are certain rather definite principles which may guide us in our attempts to approach as nearly as possible to such an ideal. In an earlier paragraph it was pointed out that the aims of education in a democracy set our problem for us. It was stated that in addition to preparing the individual to enjoy in a worthy manner his leisure and to permit him to develop to its fullest extent his personality, the school has two different functions in fitting individ-

uals for group life. This group life includes first of all the large group of society as a whole, and secondly, the smaller class group. That is, education must fit the individual to become a citizen and a cooperating member of society, and also a worker in some particular occupation. Although these two functions are really supplementary and not antagonistic to each other, education must seek to fit the pupil for assimilation with the larger as against the smaller group in the interests of a wholesome social order. The schools of a democratic society have an integrating function to perform and it is for this reason we seek that all American children should speak a common language, write an understandable prose, have a common knowledge of certain standard literature, know and appreciate the important facts of our geography, history and civic life. In other words, a universal value attaches to certain subjects of study, sufficient to require that they be given a place in practically every curriculum and that every pupil take these subjects. Specifically, these constants include such subjects as the English language and literature, United States history, civics, health education, and possibly general science, if it includes those common scientific facts and principles which are met in the everyday life of the average individual.

But another function of education is to prepare the individual to discharge efficiently his responsibilities in the small group of which he will inevitably be a part. Although membership in, and sympathy with, the large group of society as a whole is ne-

cessary, efficient participation in the activities of the smaller group is essential to individual efficiency and ultimate social usefulness. It has already been pointed out that one factor determining the variable studies is the individual differences among pupils in aptitudes, interests and future activities. Since each individual differs to some extent from all others, such a principle would theoretically require a different curriculum for each individual. Such a plan is of course entirely impracticable, and only dominant differences between various groups can be considered. There must be a certain minimum number of pupils who can profit educationally from any course before the junior high school can be justified in offering it as a subject in its curriculum.

Another factor to be considered in determining the variables in the curriculum is found in the differentiated needs of society. Every important phase of the activities of society should be represented in the program of the junior high school, provided they can be suited to the capacities of its pupils and meet their real needs. We are not justified in following the plan which has largely prevailed in the past of allowing one group of studies to monopolize the curriculum of the secondary school. The aptitudes of the pupils and the various needs of society will lead to a fairly well defined division into five groups where a sufficiently large number of pupils is concerned. These will be the academic, the industrial, the commercial, the agricultural, and the household arts groups. The academic group should include such courses as foreign languages, algebra, geometry, and English; the industrial group,

courses in such subjects as wood-work, metal work, plumbing, printing, mechanical drawing and industrial design; the commercial group, courses in bookkeeping, accounting, salesmanship, typewriting, stenography, commercial forms; the agricultural group, courses in elementary agriculture, farm mechanics, farm accounts; the household arts group, courses in textiles and clothing, foods and cooking, interior design and decoration, household management and accounts.

A third factor which is always present and which exerts a very large influence upon the determination of variables in the curriculum is the size of the school and the available financial means. It is most likely that in the very large majority of cases the number of variables possible is limited by the small enrollment and insufficient finances. In such cases the relative stress upon the different types of activities named will vary with the community. The aim must be to fit the curriculum to local conditions. This will to a large degree prove a vitalizing factor in the whole scheme, and will make necessary a careful study of local conditions together with a constant close touch with the developments in the community.

It is at this point that we are confronted with what is urged as a fundamental objection to variables in the junior high-school curriculum. There are those who see in this provision evidence of a growing educational theory that individual rights and liberties are paramount to social duties. Although they realize that the most valuable contribution of current educational psychology is a knowledge of individual differences, they believe that the

discovery of these differences has resulted in an exaltation of the individual, at the cost of decreased attention to the needs and demands of society and of the state. Bagley especially has been persistent in pointing out what he considers the dangers of differentiated curriculums in the junior high school. He declares,

"It involves not only the possibility but the probability of the ultimate limitation of the common elements in the education of all the people to the first six years, and this means a limitation of these common elements to the mere tools of knowledge. Extensive differentiation at twelve also means the ultimate disintegration of our 'educational-ladder' type of school organization."*

"Common elements in the curriculums of the public schools are not only justified, they are demanded, by social needs, and particularly by the needs of a democracy..... If democracy depends upon any one factor, it depends upon social solidarity,--it depends upon a certain community of ideas, standards, ideals, and aspirations among all the members of the democratic society, and it is this necessity that lies at the basis of uniformity in the programs of a democratic school system."**

This demand for a certain amount of common elements in our junior high-school curriculums is sound, and as we have indicated, should serve as a guiding principle in our task of providing cur-

* Bagley, W. C., In School and Home Education, Vol. 34, pp. 239, 240, March, 1915.

** Bagley, W. C., "Principles Justifying Common Elements in the School Program," School and Home Education, Vol. 34, p. 122.

riculums for such a school. It is necessary, however, that we consider as supplementary and not as antagonistic, the integrating function of education and the differentiating function of education. There is an essential bond of interest between the individual and society, for the possibility of the development of the individual is found in his participation in social activities, and the possibility of the development of society is found in the development of personality in individuals. It should be thoroughly understood, however, that the junior high school does not involve anything like complete differentiation at the age of twelve. The principle of differentiation in subject matter should be only gradually introduced. On the other hand as much differentiation in teaching methods suited to individual needs as is practicable is desirable at all times.

A concrete case of differentiation in the Rochester (N.Y.) junior high school will serve to illustrate the gradual method in which differentiation should be introduced. In this school no differentiation in courses is made until the beginning of Grade VII.A, or the latter half of Grade VII. This allows one-half year in which to study the needs, ability, and interests of each pupil. No pupil is assigned to any course until the parents have been consulted, the entire record of the pupil in the elementary school studied and the judgment of the present teacher secured. This allows one-half year in which to canvass all the conditions of any pupil before permitting any differentiated work, and another half year in which to verify the choice which has been made.

This argument against the junior high school is based

upon the belief that it involves a complete differentiation, that the junior high school considers common elements beyond the fifth or sixth school year as unessential, and that while there will continue to be some uniformity, this will be determined merely by convenience, not by basic and fundamental principles. As soon as it is seen that differentiation in the junior high school is only meant to supplement the core of common elements, this objection loses most of its force. Viewed in this light, Bagley agrees with Judd that "in the future there must be a common body of material for all children and a body of carefully supervised but differentiated opportunities for children of different tastes and capacities. Anyone who is disposed to divide the course of study of the seventh grade into entirely separate and distinct curricula for different children does violence to the fundamental demands of a democratic organization. On the other hand, anyone who would hold the course of study at any point to rigid and narrow lines does violence to the natural demands which express themselves in the differentiated interests of the pupils."*

After providing for differentiated curriculums, all containing certain constants, a question of vital importance is that of concentration and distribution of the pupil's time among the different subjects offered as variables. That is, shall the various curriculums be rather distinctly separated or shall we allow over-

* Bagley and Judd, "Enlarging the American Elementary School," School Review, Vol. 26, p. 321.

lapping and cross-cutting? The tendency in upper secondary and higher education since the basis of curriculum differentiation has shifted from subject matter to individual needs and future destinies, has been to organize rather definitely separated curriculums without allowing much overlapping. With such sharply differentiated curriculums it is possible to work toward rather definite vocational ends. Provided a suitable curriculum has been arranged for each group of pupils differing in abilities and future vocations, it is possible to secure more effective teaching and a more homogeneous grouping of pupils. On the other hand such lack of flexibility has certain disadvantages. This fixed differentiation of curriculums requires an early choice of a life career, which must be based on the very doubtful assumption that the child's interests will remain the same. In advocating flexibility in curriculums, however, we must be careful that it does not lead to superficiality, a danger which must always be guarded against where curriculums are flexible. To permit a pupil to take a large number of isolated subjects without studying any one of them thoroughly is undesirable. The distribution of effort over many subjects must be limited. A method which will meet this difficulty and at the same time be adapted to individual differences is, in addition to the constants required of every pupil, to require the pupil to do advanced work in some one field of his own choice.

Such a plan will permit the junior high school to work out one of its primary purposes. It will recognize the desirabil-

ity of relatively wide range of subject matter for the purposes of educational diagnosis and guidance without anticipating too much the choice of a vocation. It will provide as far as possible a range of activities sufficiently broad to bring out individual interests and aptitudes. Such an exploration of the various fields and activities of life will give each pupil some knowledge of the general fields more exhaustively studied in higher courses, and thus will enable him to choose more wisely his future curriculum and vocation in life.

In some junior high schools from the time the boy begins his work in the industrial arts course, for example, until he reaches the end of the junior high-school course, his time is spent, not in any one shop, but in all the shops, giving a certain number of weeks to each. If at the end of this time he must go directly into the trades, he will have had some insight into the field of each, and some hand training that will be of service to him. On the other hand, if he is to continue his school work along the trade lines he can with reasonable intelligence select his specialized trade. Furthermore, if at the end of the junior high school he decides to shift his major interest, it will be possible for him to do so. No matter what work the pupil has had in the junior high school, any line of work which he chooses to take up in the senior high school should be open to him. The principles stated of requiring certain constants from all pupils and of requiring some degree of concentration upon some major interest make possible such a

provision. In all of our reorganization of these grades we cannot fail to continue our educational-ladder system of schools.

For pupils who in spite of all the school can do to retain them, are to leave school at the close of the junior high-school period and enter upon some kind of work, many educators would offer specific vocational or trade training. In the questionnaire sent out by Briggs a majority of the judges were in favor of providing whenever possible real vocational or trade training for such pupils as will assuredly or even probably leave school at the end of the period of compulsory education.* It was indicated, however, that the number of pupils whose future can be known with sufficient definiteness to warrant fully differentiated courses is probably too small to permit such differentiation except in very large junior high schools.

It must be realized that there is a danger of encouraging vocational selection at such an early age that it may result in lifelong injury to the pupil. Surely any influence that forces the choice by a majority of pupils of a specific vocation during the junior high-school period cannot be defended by the public school. On the other hand, any form of school organization that affords no opportunity for awakening vocational abilities before the time when vocational selection is actually made is guilty of an equally serious error. The pupil is often forced to make some sort of decision

* Briggs, T. H., "What is a junior high school," in Educ. Adm. and Super., Vol. V., p. 293.

of vocational importance when he leaves school at the end of the compulsory attendance age. For the large number who withdraw, the choice of work was of decided vocational importance, and yet the decision was guided largely by chance rather than by intelligence.

It is probable that the correct solution is to insist that the courses offered by the junior high school should not have as their object for the large majority of pupils specific trade training. That will come later and will require a larger degree of specialization. In other words the junior high school should offer large opportunities for practical arts training, which while not definitely vocational in its outcome, will help the pupil in finding the lines of his probable vocational strength, and will likewise give insight into the ideals and social significance of occupational life.

Finally, we must point out the provision which is to be made for those over-age pupils whom it has been advocated the junior high school should care for. In the curriculum which has been outlined certain studies have been considered as constants to be required of all pupils of normal progress. The situation is different, however, for most of those mature pupils who have been admitted to the junior high school without requiring the successful completion of the regular work of the first six grades. Such pupils should be allowed to study any combination of subjects which their limited attainments, capacities and interests may permit. It is probable that many such pupils will leave school before finishing the complete secondary course, but the junior high school must seek to retain them as long as possible and to give them while they remain such work as will be of benefit to them.

Chapter V.

Organization and Administration of the Junior High School

Although the junior high school has been in existence only a comparatively few years, it has been adopted to a varying extent in most sections of the country, and its more general adoption is probably only a question of time. But because this reorganization has been brought about under widely varying conditions, there has developed a diversity of practice regarding such features as name used, grades included, housing, program of studies, qualifications of teachers, and supervision of instruction. Since this diversity is due in part to differing local conditions, certain differences of organization and administration may wisely exist. On the other hand, some of these differences result from a lack of a true conception of what the junior high school involves, and from the fact that little attempt has been made so far to set up any sort of standards. While the broad lines of its administration are generally accepted by school superintendents, the details will necessarily remain for some time in the experimental stage awaiting the test of experience. There are those who believe that the large cities are the only places where it can succeed; others that it is adapted likewise to the small community. One superintendent may work out a successful junior high school by stressing one set of principles, and another superintendent may work out a similarly successful junior high school by emphasizing another set of principles, depending upon the

individuality of the superintendent and the local conditions.

Frequently a junior high school is nothing more than the seventh and eighth grades of the elementary school carried over into the high school building and designated by a name which would seem to indicate a new type of organization, but which simply continues earlier conditions under a new name. There can be no justification for using the term "junior high school" if the kind of work done is exactly the same as that done in the seventh and eighth grades. If elementary subject matter and elementary methods are used in school, then we must recognize that it is an elementary school, not a junior high school.

Frequently a superintendent who is convinced of the educational advantages and superior effectiveness of the six-three-three form of organization over the eight-four division is in charge of the schools of a community in which the traditional division has long been accepted and the idea of a change is fought. It is necessary for him to proceed toward the inauguration of the new plan by a program unfolded step by step over a period of years, but keeping always in mind the final realization of the complete ideal. The departmental system, the introduction of pre-vocational subjects, the modification of the course of study to provide at least some election of studies, the gradual heightening of the qualifications of teachers, accompanied by the introduction of foreign languages and elementary sciences, would constitute the series of progressive acts by which the goal might finally be attained.

No order of procedure to cover all cases can be determined. It is possible to begin with the hardest problem first,

that of curriculum reorganization and partial differentiation; or it may be better to begin with some such feature as vocational guidance, supervised study, departmentalism, the mere addition of new subjects, or the formation of a fast-moving group in the school. The important thing to bear in mind is that complete reorganization cannot be accomplished at once, nor can one wait until he is able to launch at once a completely developed junior high school. The thing to do is to start upon whatever improvement seems advisable and practicable. Local conditions will play a large part in determining at which point the start can best be made.

The need for more room and new buildings often presents a favorable opportunity for the organization of a junior high school. In some cases the pupils of the first year in the high school have been placed with those of the seventh and eighth grades in order to relieve the crowded conditions in the high-school building; in still other cases, a new high-school building has been erected and the pupils of the upper grades are placed in the old building, which usually is well adapted to junior high-school work. To this new organization the school authorities have added various educational reforms with the result that a new type of school has been created.

Supt. Study of Neodasha, after several years of experiment advises that these fundamental steps be taken by one who is planning to organize a junior high school. Among these the first thing necessary for success is the thorough preparation of the superintendent himself. His position must be logical, backed up by his enthusiasm, and he must know how to present his cause as well as know the technical arguments themselves. Above all he must be patient, tact-

ful and willing to wait for results. Second, before any reorganization is attempted the backing and support of the school board must be secured. This will probably involve the task of educating them to the advantages of the proposed plan. Being a sole promoter would likely result in failure, for it is necessary that the board share the responsibility of such a step. Third, the aims and purposes of the new plan must be thoroughly explained to the principals and teachers, and their co-operation secured. Fourth, the parents and the community must understand something about the new organization. Its values must be clearly and constantly put before them through the newspaper, talks before organizations and clubs, and every other suitable occasion. Fifth, preliminary training should be given to the teachers to familiarize them with the point of view and methods of procedure.*

It is evident that many of the changes and reforms which the organization of the junior high school involves have already been adopted in many cases by the present eight-four method of organization. The question is often asked, why, if these reforms are already begun in many elementary schools, is there any need for the new organization? In answering this question it is necessary to point out the fact that only a comparatively few elementary schools have introduced even one of the readjustments proposed, and that nearly all the junior high schools have adopted a number of them. It is evidently easier to introduce such changes in a new organization than in the old.

* Study, H. P., "Preliminary Steps in Organizing a Junior High School," Educ. Adm. and Super., Vol. 3, pp. 339-342.

Many difficulties will necessarily be met with in carrying out such a reorganization as that proposed by the junior high school. Many of these obstacles are, however, but temporary and incidental to any form of reorganization. Such are those arising in some states from established laws or regulations affecting the distribution of public funds, the lack of properly qualified teachers, the necessity of readjusting college entrance requirements to the reorganized system, the trouble with seventh- and eighth-grade teachers not qualified to teach in the junior high school, and finally, the exaggerated and unfounded reports of benefits from too enthusiastic supporters.

The name "junior high school" has been used throughout this discussion to designate the new type of school which such a reorganization involves. In California "intermediate school" is the legalized term, and this name appears occasionally throughout the country. Occasionally other names are given, such as "pre-vocational grammar school" in New Britain, Conn. "Intermediate school" and "junior high school" are by far the most frequent. The name, intermediate school, has the advantage of indicating that the purpose of the school is to articulate closely with the elementary school on the one hand and with the high school on the other. Sometimes we also find that it is easier to secure funds for an "intermediate school" than for a "junior high school," the reason being that the name intermediate seems to imply that the school is for the common people better than the term high school does. It has the disadvantage, however, of being frequently confused with the

middle grades of the eight- or nine-year elementary school. On the other hand, the name, junior high school, indicates the general secondary character and aims of the school, and likewise suggests to the pupils a certain dignity and importance that appeals to them. It sounds better to the boy and girl, and it is easier to develop a feeling of pride and responsibility in a "junior high school" than in an "intermediate school."

The arrangement of grades in the junior high school varies. According to the report of the U.S. Commissioner of Education for 1914, the most common arrangement was to have the school made up of grades seven and eight, although the number reporting a combination of grades seven, eight and nine is nearly as large.* That the popularity of the combination of grades seven and eight is due to the limiting circumstances of the local situation rather than to a belief in the superiority of this arrangement over the other is clearly indicated in the results of a questionnaire by Briggs. He found that opinion is overwhelmingly in favor of an organization of grades seven, eight, nine, ninety-five percent of the judges whom he questioned voting it desirable and forty percent considering it essential.**

There are several reasons why it is desirable for the junior high school to include grades seven, eight, nine. In the

* See Report of U.S. Com. of Ed. 1914, Vol. I., pp. 148-149.

** Briggs, T. H., "What Is a Junior High School," Educ. Adm. and Super., Vol. 5, p. 290.

first place there is a widespread conviction that secondary education ought to be reorganized and that the part of the high school most in need of reform is the freshman year. The necessary reforms in this grade can best be accomplished if we take it out of its traditional setting and include it in a new organization where changes can more easily be secured. In the second place the population of the secondary school has increased in a ratio greatly exceeding the growth in population, resulting generally in crowded high-school buildings. The freshman class is always the largest of the four high-school classes, and therefore placing the freshman class in the junior high-school division, where building, maintenance, and instruction costs per pupil are less than in the regular high school, will result in greater economy. The first reason alone because of its educational significance ought to be sufficient to establish as the standard grade arrangement the six-three-three plan.

Junior high schools are to be found in separate plants of their own, in the same plant with the senior high school and in the same building with the elementary grades. Of 82 cities whose junior high schools were reported to the Bureau of Education in 1914,* there were 29 junior high schools having their own separate building, 26 were housed with the elementary school, 25 are housed with the high school, and 12 are housed either with the elementary

* Report of U.S. Com. of Ed. 1914, Vol. I., pp. 148-149.

or high school, but with which is not indicated.*

This matter of housing must be determined largely by the size of the city or town, the opportunities offered by new building operations, or, in places where there is no growth in population, and therefore no promise of new buildings, by the number and character of the buildings available. In some of the smaller districts where they are erecting expensive high-school buildings to accommodate a small number of high-school pupils it would seem best to organize the junior high school in the same building with the senior high school. In the larger cities, however, where the high schools are usually crowded and often too large in numbers, the separate building for the junior high school is the better plan. Such separate schools should, of course, be as nearly central as possible to the several contributing elementary schools and within a reasonable walking distance of the homes of the district.

The advantages of the separate building for the junior high school lie in the fact that it is better suited to meet the needs of its pupils. A separate life and activities, such as athletic teams, orchestra, literary and debating clubs, help to interest pupils and prepare them better for positions of responsibility and leadership. In this particular we find every sort of condition from those schools that make no attempt to develop

* Some cities had more than one junior high school and housed them according to different plans; hence the total number of arrangements is larger than the number of cities.

this side of the work to very highly organized activities. The pupils take an active interest in such organizations and they therefore tend to lessen the disciplinary problems. It is possible under careful supervision to allow pupils who have reached this age to share in some of the larger liberties which are given to high-school students as distinguished from students in the elementary school. When housed separately this freedom can more readily be allowed these students, because in such a case there is no one for them to spoil. If housed with a grade school, the liberties which are justifiable for seventh-and eighth-grade pupils cause many of the disciplinary problems among the lower grades. The smaller children imitate the older pupils and cannot understand why they should not enjoy the same privileges as those who are older. On the other hand, if housed separately, there is no one for junior high-school pupils themselves to imitate, as would be the case if they were placed with the senior high school. The older pupils, instead of being insignificant as would be the case when combined with the senior high school, can now be used as leaders in activities which they consider very much worth while.

There is also as great a variability in the arrangements concerning the principal as housing the school. Of the 82 cities reporting junior high schools to the Commissioner of Education in 1914, 18 reported that the junior high school had the same principal as the elementary school, 17 the same as the senior high school, 35 had their own principal, and 12 failed to report what provision had been made for principal. Of the 18 cities in which the principal of the junior high school is the same as that of the elementary

school all have the junior high school housed with the elementary school. Of the 17 in which the principal of the junior high school is the same as the high school principal, 16 house the junior high school with the senior high school and 1 houses it with the elementary school. Of the 35 cities in which the junior high school has its own principal, 27 house it alone, 5 house it with the elementary school and 3 house it with the senior high school.* It is evident from this that the practice is to have a separate junior high-school principal, except in those cases where the school is housed with either the elementary or high school, when the principal of these schools usually acts as the principal of the junior high school also. There can be no doubt that the best results are to be secured by having a separate principal for the junior high school, a person who can devote all of his time and energy to the problems arising from the administration of the junior high school. In view of the many difficulties to be met in the organization of the junior high school, we can look for the best results only when such is the case.

One of the difficulties involved in the new organization is to secure properly qualified teachers. At present we have few teachers who have been specifically trained for junior high-school

* Report of U.S. Commissioner of Education 1914, Vol. I., pp. 148-149.

teaching. Our present junior high schools are taught by former elementary- or high-school teachers. The danger here lies in the fact that in the one case we are apt to have elementary methods of teaching employed in the junior high school, while in the other case high-school methods tend to prevail. Of the 1528 teachers reported in an incomplete tabulation as giving instruction in the junior high schools, 581 had previous experience in both elementary and secondary schools, 209 in secondary schools alone, and 642 in elementary schools alone. This means that only a relatively small percentage of the teachers were without experience when they were selected.* The tendency to increase the number of men teachers in the junior high school is very desirable. Such a plan cannot be too highly commended, for it is necessary that we have in the junior high school men who will excite the right kind of admiration from both boys and girls.

Junior high schools are likely to be handicapped for the present by the lack of specially prepared teachers. As the demands increase, however, they will undoubtedly be met. Teachers are in several ways being prepared for the junior high school. Normal schools and colleges of education are beginning to prepare teachers for these schools. Several cities independently are developing their own teachers. Rochester, N.Y., for instance, in anticipation of four junior high schools, offered weekly work in subjects that were to be introduced; from those successfully taking the courses, a sufficient number of teachers for the new schools were selected.

* For figures, see Report of U.S. Commissioner of Education 1914, Vol I, p. 146.

California has defined what shall be the training and qualifications of teachers in the junior high school. The legislature in 1915 provided that normal-school graduates who have taken one year of college work, or holders of elementary certificates granted upon examination, who have taken two years of college work, may be granted permits to teach in any grade of the intermediate school. In some of the junior high schools all teachers have been required to hold high-school certificates. This requirement has resulted in the displacement of very capable teachers of the seventh and eighth-grade work who held only elementary-school certificates. Such a provision as in California will enable ambitious teachers holding elementary-school certificates to qualify for junior high-school work, thus removing a cause for much ill-feeling among the displaced teachers.

In small systems the plan has sometimes been adopted of using the same teachers in both the senior and junior high schools. This is possible only where the two buildings are within easy reach of each other, or where one plant accommodates both schools. Such a plan makes possible a greater degree of specialization in teaching than would be the case with two very small and separate staffs. It also leads to a greater continuity of work in any subject common to both schools by having it in charge of the same teacher. On the other hand there is a danger to be guarded against in not preserving the proper difference in methods of teaching between the two schools. While it is difficult to establish any definite standards in regard to this particular feature of administration, any arrangement is permissible and desirable which makes possible a closer coördination of instruction while observing at the same time the proper differ-

ences in methods between the two schools.

Just as we have few teachers specially trained for this work, so there are few suitable textbooks for the work of the junior high school. The elementary and high-school texts which we now have will not serve our purpose if we expect to remove the defects of articulation between the grade and high schools. The junior high school involves the introduction into earlier grades of studies previously found in the later years, together with other subjects of study which are relatively new in the school curriculum. Around the older subjects there has developed a teaching method embodied in textbooks, but these must be thoroughly revised before they can be suitable for use in the junior high school. The newer subjects have as yet not developed satisfactory textbooks. When we realize the length of time required to standardize textbooks in any subject it is evident that the change in textbooks necessary for the new junior high school constitutes one of the difficult problems involved in the reorganization of the schools.

The question of supervised study in the junior high school can also well claim our attention, for much of its effectiveness depends upon the administrative arrangements which are made for it. The junior high school should persistently seek to teach its students how to study effectively. The main features of the administrative policy should include divided periods, part for recitation and part for supervised study, arranged as part of the daily program in most subjects. This plan would guarantee a minimum amount of time devoted by every pupil to each lesson every day in the presence and under the guidance of the teacher of that particular subject. Such a divided period, as compared with the conventional recitation,

will set the problems to be solved, will show the pupil how to gather material for their solution, and will give him an opportunity to get the actual work done during the period of supervised study. It will teach the pupil how to study instead of merely testing his memory. The divided-period plan is advantageous in that it shortens the recitation period without damage, provides for study of a subject immediately after recitation in that subject, thus doing away with much of the problem of home study, gives the pupil an opportunity for guidance from the teacher under whom he is pursuing the subject, gives the teacher an opportunity to learn the needs of the individual child and his difficulties in studying, thereby making retardation less likely and promotion more likely.

The supervision of instruction in such a newly formed school is of vital importance. It is possible that a tendency will exist for each department to emphasize too strongly the importance of its own branch of study. If any such tendency appears it must be promptly controlled and a proper balance maintained. In moderate-sized schools this supervision should be given by the principal. In places where the same building houses both the junior and senior high schools, the principal of the senior high school frequently has charge of the supervision. This arrangement is open to the objection that ordinary high school methods are likely to prevail down through the seventh and eighth grades, and a six-year high-school rather than a junior high-school atmosphere will probably be the result. In the smallest towns supervision may possibly have to be exercised by the superintendent of schools. No one plan of supervision can be applied to all schools. It may be thought that since instruction in the junior high school is departmental and thus in

the hands of specialists there will be need of less supervision than is ordinarily given to elementary instruction. On the contrary the fact is that the work is new in its aims, content and methods, and therefore calls for close attention to this whole matter of oversight. The only standard to be set up is a general one; there must be a competent, close, sympathetic supervision, keeping always in mind the needs of the pupils of the junior high school.

As has been pointed out in a previous chapter, the junior high school seeks to recognize individual differences in ability and interest, the diversity of future occupations, and the individual needs of its pupils in a way which has been largely neglected. Of the many children who leave school at an early age, relatively few have been intelligently advised by their teachers or the school as to their life work. The administration of the junior high school should provide for the exercise of this function through the principal, teachers, or a special student adviser. The most important problem here is the personality of the individual who is to have charge of this work. The different members of the faculty of any school are not all equally qualified for this work, and yet its success depends largely upon the person who is asked to take charge of the work. Generally such qualities as judgment, tact, a sympathetic understanding of boys and girls of this age, and a knowledge of the world are of more value than mere scholarship.

In order that such an adviser may most effectively help the individual pupil to find himself, some system must be devised whereby they may have intimate knowledge of the children coming up from the grades, and be able to pass on such knowledge to the senior high school, or, if the pupil leaves school to start work,

to his employer. For this purpose some sort of a card system has been suggested, upon which might be placed information as to age, parentage, deportment, aptitude, ability shown and probably other important items, none of which should be too lengthy. This would contain not merely his record as a pupil, but a statement of such personal traits as would be of value to the high school principal and teachers in their first contact with him, and also to his adviser in giving him educational and vocational guidance.

The very practical consideration arises as to the feasibility of the junior high school in the small town. Many believe that the operation of the junior high school must be confined to the larger towns and cities, because of the few pupils and lack of money which confront the small town. On the other hand we have evidence of a very convincing nature that the junior high school is both a practicable and desirable arrangement in small towns. Many such places have organized a junior high school, and while it necessarily is more limited than what the cities can offer, it has proved a decided improvement over the old arrangement. Some of these smaller towns have housed their junior high school in the same building with the senior high school. Such a plan has advantages in the small place, due in the first place to the fact that each teacher needs to teach fewer subjects than if the schools were separate. Under the separate arrangement the teachers would be in two groups, and specialization would be less because each teacher would have to teach more subjects. Another advantage of placing junior and senior high schools together in a small community lies in the fact that there need be no duplication of equipment, for the same equipment can be used by both junior and senior high schools. Equipment for

the small school costs practically as much as for a system that uses its equipment all day. The same domestic science equipment, shop and laboratory equipment, and the same library can be used by all six grades.

The question of cost must always remain one of the most important administrative considerations in the junior high-school reorganization. If the junior high school will cost more than the old 8-4 arrangement, this increased cost can only be justified by the enlarged and bettered educational opportunities which it will be able to offer. It is generally the case that the cost of schools is increased under the junior-senior high school plan. It should be remembered, however, that while the per capita expense of the pupils who would have been in the seventh and eighth grades of the elementary school will be raised, the cost of education of those who would ordinarily be in the freshman year of the high school will be lowered. This will tend to offset to some degree the increased expense met in offering this new type of education to pupils of the seventh and eighth grades. One is also justified in calling attention to the fact that a decrease in the amount of retardation, if brought about through the reorganization of the system, will further offset the increased cost of the junior high school.

Of thirty cities reporting the cost of the junior high school to the Bureau of Education, seventeen reported that the junior high school costs more per capita than the elementary school, seven reported that the cost was the same, and six qualified their answers. Comparing the cost with that of the high school, ten reported that it was the same, and twenty reported that it was less.*

*Report of U. S. Commissioner of Education, 1914, Vol. I, p. 145.

Usually it has been estimated that the per capita cost will be between the present cost of elementary-school education and secondary-school education. This increased cost over the elementary school may well be justified. Since secondary education generally costs about twice as much per capita as elementary education, it is only reasonable that the increase be gradual instead of coming suddenly at the end of the eighth grade.

On the surface a reorganization of the school system resulting in the junior high school will increase the cost of maintaining the schools. If we can proportionately increase the efficiency of our schools while we are increasing their cost, the increased expense is to that extent justified. Hence an increased financial outlay may well be justified by broader social and educational results.

CONCLUSION.

The results of this investigation do not at all constitute a complete treatment of the junior high school. Before a full and comprehensive treatment of the junior high school is possible, more facts, statistics and experimental data upon the subject must be available. The junior high school is still too new to have had time for such material to accumulate. The investigation has, however, pointed out the fundamental principles which must serve as guides in the further study and development of the junior high school.

In the first place all planning and development in the junior high school must take into consideration the gradual manner in which the whole group of pupils of junior high-school age develops, both physically and mentally. It must suit its administration, organization, subject matter, methods of instruction and discipline to this gradual change.

In the second place, the various basic features involved in this readjustment were pointed out and discussed. The best theory and practice served to indicate that the true junior high school made provision for at least the following changes and reforms; and that in so far as any so-called junior high school failed to incorporate these features, to that degree it fell short of realizing the greatest benefits of this new type of school. The junior high school should consist of the seventh, eighth and ninth grades and should be housed separately wherever possible. At all

events it must have a separate organization and carry on its own activities distinct from either the senior high school or the elementary school. To introduce its program of studies will require that non-essentials and obsolete material be eliminated from the present course of study of the eight-year elementary school. This will make it possible for the junior high school to offer a program of studies of decidedly greater scope and richer content than that of the present elementary school. The selection and organization of these studies must be determined upon the basis of the pupils' interests and abilities; and the needs of a democratic society, rather than upon the basis of any general educational ideal as culture or discipline. With such a curriculum, provision must be made for some choice of studies by the pupil under careful supervision, for the purpose of testing out individual abilities in academic, pre-vocational and vocational work. It should be a primary purpose of the junior high school to offer such educational experiences as will enable the pupil to explore, try out, and gain an understanding of his own capacities and interests, and thus afford a basis of actual experience for the intelligent selection of a vocation. Departmental teaching and promotion by subject must likewise characterize the junior high school organization, because of the better teaching which is possible under the departmental plan, and because much unnecessary retardation may be eliminated by promoting the pupils in each subject instead of by grades.

Supervised study administered by means of some feasible plan must also find a place in every properly organized junior high school, because of the necessity of teaching pupils of this age how to study effectively. Lastly, this new type of school must prepare itself to care for the retarded pupil of adolescent age, even though he has not completed all the preceding grades, as well as give special attention and consideration to the super-normal pupil.

At the present time the junior high school represents the next step in the evolution of our democratic school system. It is of course possible that other reorganizations will become desirable in the future; for the introduction of the junior high school may prove to be but preliminary to other changes. Therefore, we cannot positively claim the six-three-three plan as the final form which our public schools will assume. Even though this system of educational organization may at some future time require modification, the greatest hope for future improvement lies in the general introduction of the junior high school at the present time. Although a movement of comparatively recent origin, its rapid growth and development are but a forecast of its inevitable general introduction as one division of our educational organization. Perhaps the greatest danger in this reorganization lies in the fact that in many cases it must be under the direction of those who but imperfectly understand its purpose and basic principles. The remedy for such a situation is not to suppress the movement, but carefully to direct its further progress.

In closing, what may be said of the results which have followed the introduction of the junior high school in those places where it has been tried? In attempting to answer this question, we are confronted with a lack of sufficient and reliable data. The evidence which we have upon the subject, however, serves to indicate that the advantages of the junior high school greatly outweigh whatever disadvantages may attend the reorganization. There have been many optimistic reports upon the decreased elimination of pupils in this new type of school; whether this decrease has been due solely to the junior high school has not been definitely determined. Perhaps at the present stage of its development the best evidence of the success of the movement is to be found in the belief and enthusiasm of those who have really tried it out. There is no evidence that those who have adopted the junior high school desire to return to the old system. It is only a matter of time until demonstrations and proofs will be forthcoming which conclusively will make evident the advantages of the junior high-school form of organization over our present eight-four system.

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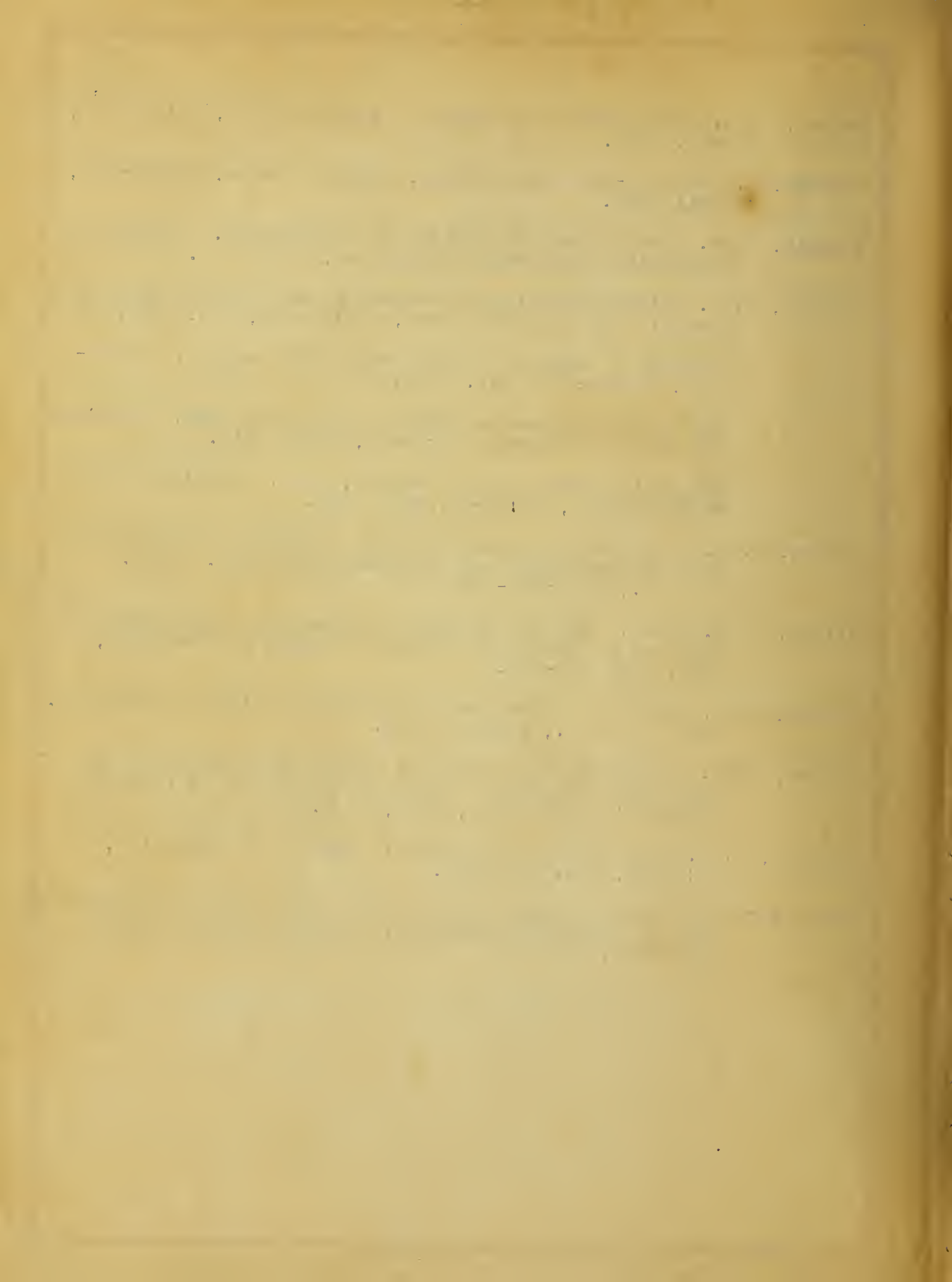
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